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HENRY V. POOR, Editor.

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PRINCIPAL CONTENTS.

Pacific Railroad.....	769
South Side Railroad.....	772
Mileage of Engines.....	772
Useful Weight of Locomotives.....	774
Wilmington and Manchester Railroad.....	775
Stock and Money Market.....	776
Baltimore and Susquehanna Railroad.....	777
Office of Newspaper Criticism.....	778
Missouri Iron Mountain Railroad.....	778
Relation of the Great Lakes to the Interior Commerce of the Country.....	779
James River and Kanawha Canal.....	779
Journal of Railroad Law.....	780
Wilmington and Raleigh Railroad.....	781

American Railroad Journal.

PUBLISHED BY J. H. SCHULTZ & CO., No. 9 SPRUCE ST.

Saturday, December 3, 1853.

ENTERED according to Act of Congress, in the year 1853, by EDWIN F. JOHNSON, in the Clerk's Office of the District Court of Connecticut.

Railroad to the Pacific--Northern Route. *Its General Character, Relative Merits, etc.*

BY EDWIN F. JOHNSON, C. E.

(Continued from Page 756.)

TERMINI ON THE PACIFIC AND ON THE LAKES.

Having now concluded the description of the proposed road, its character, and the country through which it passes; attention is requested to the places selected for its termini.

In no part of the world can a site be found for a great maritime city,—such an one as must necessarily grow up at the terminus of the proposed railroad on the Pacific,—superior to that which is afforded on the waters connected with the straits of De Fuca.

According to Commander Wilkes these straits are ninety-five miles in length, and eleven miles broad. They connect within our own borders with several spacious inlets, known as Hoods Canal, Puget Sound, Admiralty Inlet, and the Archipelago of Arro. These were all carefully surveyed under his direction, and he represents them as "unsurpassed by any estuary in the world. They com-

prise very many fine harbors and safe anchorages, and are entirely free from dangers. * * The country by which these waters are surrounded is remarkably salubrious, and offers every advantage for the accommodation of a vast commercial and military marine, with conveniences for docks; and many sites for towns and cities,—at all times well supplied with water, and capable of being provided with every thing by the surrounding country, which is well adapted for agriculture." In particular, he states, that "on the east side of Admiralty Inlet north of the latitude of 47° are many fine harbors and bays, all of which, in time, will become places of resort for vessels.— Situated on the east side they are more accessible for trade than those on the west side, and from having a large area of country around them, susceptible of improvement, they must become more thickly and densely populated." Ten of these bays and harbors are enumerated. "Nothing," he continues, "can exceed the beauty of these waters, and their safety." Spring tides rise eighteen feet, and neap tides twelve feet, affording every facility for the construction of dry docks; winters mild and of short duration, and harbors never obstructed by ice." The islands in the archipelago of Arro, he informs us, contain quarries of sandstone, and granite convenient of access and suitable for building.

Thornton in speaking of these waters, states that there are many reasons which produce the conviction on his mind that they "will ultimately send out upon the ocean not only a greater number of able and skilful seamen than the Bay of San Francisco, but more than any other of equal extent in the world."

"Among the reasons which may be assigned for this opinion, is the inexhaustible supply of good timber along the shores of this great Bay, and the unlimited amount of motive power, as compared with the almost, if not quite total absence of both, about the Bay of San Francisco. I may also mention the fact," he says, of the "vastly superior productive powers of Oregon, (now Oregon and Washington,) as an agricultural country, rendering it capable of furnishing supplies to an indefinite extent to a commercial and military marine." To this may be added, the abundant supply of bitu-

minous coal for marine and manufacturing and other purposes, since ascertained to exist in the vicinity of those waters, and to which allusion has already been made in another place.

Naval gentlemen with whom I have conversed, and who have visited these waters, all concur in giving to them the high character awarded to them by Commander Wilkes and Mr. Thornton. They are capacious enough to accommodate the navy of the world; are free from shoals and from all dangers not visible, and are easily accessible at all seasons. As a site for a great commercial mart they have no equal in the particulars enumerated above, on the Pacific, within the limits of the United States.

The only other ports on that coast, which can be considered as having claim to consideration as points of general resort for the marine of the Pacific, have already been named. They are the mouth of the Columbia, San Francisco, and San Diego.

The mouth of the Columbia was for a long time deemed to be difficult of access. The dangers and difficulties of the entrance are spoken of by Wilkes and Farnham and others, but the recent surveys made under the direction of Prof. Bache, by Lieut. Bartlett, of the Navy, have disclosed the existence of a channel not before known, and the entrance is now effected at the proper period of the tide, with so little danger that the Insurance offices, it is understood, take risks for the Columbia, the same as for San Francisco. In 1850 the pilots, according to Lieut. Bartlett, took one hundred and forty sail, through the new, or South Channel, and ten vessels passed through without a pilot, no accident occurring. In this time, only four vessels passed through the old, or north channel.

The spring tides within the mouth of the Columbia, at Astoria, rise seven and a half feet, the neap tides five and one-third feet, and the mean rise and fall is estimated at six and one-third feet. In the facilities afforded for the erection of dry docks, the mouth of the Columbia is inferior to the waters connected with the straits of De Fuca, the mean rise and fall of tide in the latter being about fifteen feet. In respect to the tides and character of the entrance, the mouth of the Columbia does

not appear to differ very much from the harbor of New York, and is consequently very well suited for the terminus of the proposed railroad.

By making it such, the line of the road will be increased in length about one hundred and fifty miles, if the point of divergence is placed at the entrance to Clarks River Valley east of Fort Colville. The Cascade mountains, which constitute the only obstacle of a serious character on the Northern route, throughout its entire length, will be entirely avoided, and hence should it be found, from the surveys now in progress, that those mountains cannot easily be passed on the shorter route to the Straits of De Fuca, it will follow that the mouth of the Columbia will be the best principal terminus for the proposed road; and whether it is so found or not, its character as a maritime port, and its relation to the valley of the Columbia is such, as to give it that importance as one of the termini of the proposed road, as to render a connection with it indispensable. In relation to the Asiatic trade its position is about as favorable as the proposed terminus at De Fuca, in consequence of the latter being placed so far inland; a principal objection to it, being the increased distance by railroad from the Pacific to the lakes.

In respect to the Bay of San Francisco, we are informed by Commander Wilkes, that it is "well adapted for a naval depot or a place for whalers to recruit and refit;" but he "knows of no place where a natural site for a town can be found throughout the whole Bay," and it appeared to him "extremely difficult to select one where the locality would permit of extensive artificial improvements."

The city of San Francisco is situated a short distance within the entrance to the Bay on the south side. The population of California, exclusive of what is embraced within the limits of the city, is mostly found north of the Bay of San Francisco, in the valley of the Sacramento and its tributaries, a region so situated as to render it difficult if not impossible to form a very direct railroad communication between it and the city of San Francisco, a disadvantage not experienced by the other places named in respect to railway connections with the interior.

In regard to its position in relation to the Asiatic trade, in the facilities it possesses for obtaining supplies of timber, fuel and provisions, and in its probable future position as a central point in relation to the population which is rapidly increasing on the shores of the Pacific, San Francisco is believed to be less favored than its northern rivals at the mouth of the Columbia or at the Straits of De Fuca.

In respect to the other port mentioned, that of San Diego, Commander Wilkes describes it as an "arm of the sea, ten miles long and four miles wide, and being land locked is perfectly secure from all winds. The entrance is narrow and is easily defended, and has a sufficient depth of water, twenty feet at lowest tide." There is a bank of kelp, three miles long by one fourth broad, at the entrance of the harbor, which must be avoided by large vessels. "The drawbacks," he states "are want of fresh water, the streams not reaching the bay in the dry season," and the character of the surrounding country, which is "a barren waste of sand hills, composed of volcanic sand and mud mixed with scoria. The land is unfit for cultivation.

This leaves little to recommend it but the uniform climate, good anchorage and security from winds."

In another place he speaks of its inadequacy to accommodate the commerce of the Pacific and of the country around it to furnish the necessary supplies.

The superintendent of the Coast survey considers the harbor of San Diego, from the shelter it affords from all winds and the depth of its water, as second only to San Francisco. He says, however, that "the most important subject connected with the Bay is the effect of the debouchement of the San Diego river, bringing with it, when high, (in the rainy season) great quantities of sand directly into the channel."

The impression seems to be that the harbor will be ruined, unless the course of the river is changed, which is said to be practicable.

The mean rise and fall of the tide of this port is six feet, spring tides nine feet, and neap tides 3 1-2 feet. At San Francisco, as stated, the mean rise and fall of the tide is six feet, both inferior in this respect to the waters connected with the Straits of De Fuca. The harbor of San Diego being in lat. 32° 40' N. near the Mexican boundary, is too far south to be the terminus of any line of railroad from the east which does not cross the lower part of the valley of the Colorado, and hence does not properly come under consideration from any relation which it has to the proposed northern route.

Humboldt harbor, between San Francisco and the mouth of the Columbia, in lat. 40° 45' N. is more capacious than San Diego, but the fact that it is not accessible in very heavy weather, and cannot be approached by any important line of railway connecting directly with the interior, is sufficient to exclude it from the list of places suited for the main terminus of the Pacific Railroad.

The point on the eastern coast of Asia, already described, as the most desirable to be reached of any single point, is Shanghai in China. It is here, as stated in a late report of the Hon. E. C. Cabell, M. C., that "the trade and commerce of one half of the whole number or inhabitants of the Globe is concentrated." This being its character, its actual distance from the principal points on our Pacific coast, becomes an enquiry of importance. By computation, the length of the arc of a great circle of the earth, connecting it with San Francisco is 6,185 miles, and it is distant from the terminus of the proposed road at the Straits of De Fuca, computed in a similar manner, 5,716 miles, making a difference in favor of the latter of four hundred and sixty-nine miles.

Jeddo, the capital of Japan, is about one thousand miles nearer to either Port than Shanghai. In making the round trip to Shanghai or Jeddo, or to any Port in China or Japan, vessels, from San Francisco, must traverse nearly one thousand miles farther than from the Straits of De Fuca; an increase which it is certainly very desirable to avoid in view of the vast commerce which will ultimately be carried on between the two continents.

While considering the Straits of De Fuca or the mouth of the Columbia as points the most proper for the main terminus of the road on the Pacific, its benefits can be extended to other points of importance; to Humboldt harbor for instance and to the Bay of San Francisco. According to each of

these places a means of communicating with the leading cities on the Atlantic, and in the Mississippi and St. Lawrence valleys, superior probably, as will be shown hereafter, to any other which can be devised.

That San Francisco will continue to be a point of very great commercial importance to a large extent of country is not doubted, but it cannot claim the preeminence as a great commercial mart and although it has thus far advanced rapidly in population it must eventually yield the palm in that respect to the mouth of the Columbia or the Straits of De Fuca. Its distance from the latter point, in a direct line is 733 miles and by water probably 850 miles. From the mouth of the Columbia it is distant, 580 miles direct, and by water probably 600 miles.

The terminus at De Fuca of the proposed road, not only offers a shorter communication with Eastern Asia than any other point on the Pacific within our own borders, but its position is such as to render a direct communication with it by railway from the Atlantic more important than with any of the more southern ports in California, for the reason, that the latter having a more southern latitude are more favorably situated in respect to the existing and proposed lines of communication between the Gulf of Mexico and Caribbean Sea on one side and the Pacific on the other.

Of these lines, two only which traverse the Isthmus are in operation, one of them crossing at Panama and the other by Lake Nicaragua. Three others are projected which also cross the Isthmus and may in time be accomplished. These are the Tehuantepec and Honduras, which are railway routes, and the interoceanic canal from the Gulf of San Miguel on the Pacific to Caledonia Bay on the Atlantic. This last work is now said to be practicable by a thorough-cut, thirty-three miles only in length, and one hundred and eighty feet in depth at the deepest point; having no lockage except what may be required to regulate the flow of the water caused by the difference in level of the two oceans.

The more southern Ports on our Pacific coast, will be benefited in a higher degree by these improvements than those at the north, thus giving to the latter a stronger claim to the location of the proposed road across the continent; a claim which is fortunately sustained by the superior character of the Northern route for a great commercial thoroughfare. The more favorable position of the latter secures it in a great degree from the injurious competition which a more southern route must necessarily experience.

If the attention is directed to the route to China from the Straits of De Fuca, or from the mouth of the Columbia, it will be seen that it passes near to the Aleutian or Fox islands; the Kurile islands and the Japan islands; the whole forming a chain extending nearly two-thirds of the entire distance to China and affording eventually convenient places for repairs and depots for fuel, besides making, with the countries adjacent, valuable contributions to the trade of the Pacific.

The islands first named constitute the southern bounds of the sea of Kamtschatka, forming a girdle extending quite across the entrance to Behring's Straits which open into the Arctic sea. Sir John Richardson in speaking of the influence of

these islands upon the navigation of the Pacific, and of the climate of western America, says, that "the course of the ocean currents and interposition of the peninsula of Alaska and its prolongation by the Aleutian chain of islands protect the west coast of America from the masses of drift ice which in the same latitudes encumber and chill the Labrador coast for most of the year."

Wilkes in his "Western America" speaking of the navigation of the Pacific says, that, "looking beyond this continent we find equal advantages existing in the communication with China, and the eastern islands, not only by steam but by sailing vessels, the winds being favorable both ways. The passage to China would be made with the assistance of the *trades* and the return voyage, by the aid of the *variables* in the higher latitudes."

"No country is so well situated to communicate with all parts of the Pacific ocean as Oregon (now Washington), and for advantages it is equal to any, whether considered under the head of agriculture, commerce or manufactures. It holds that position with regard to the Pacific and its islands, which must ever make it a ruler of its commerce, and when once a direct communication with it has been opened, from the east side of the continent, it must receive the aid both in capital and emigration to rise quickly into importance, and its weight to be felt throughout that ocean."

The points which are likely to be most prominent as termini for the proposed railroad on the Lakes are, the west end of Lake Superior, and Green Bay, and the cities of Milwaukee and Chicago on Lake Michigan.

The place indicated as the most suitable for a terminus at the west end of Lake Superior, is the inlet at the junction of the St. Louis and Nowadji Ragouche rivers. This inlet is represented as of ample size, is secure from the winds and waves of the Lake, and accessible to vessels drawing 10 feet water; which exceeds the average draught of lake vessels. The St. Louis river, for some distance above the junction, affords excellent accommodations for vessels of a smaller size.

Lake Superior is elevated about 630 feet above the sea, its bed in the deepest part is below the sea level, and its waters have a mean temperature beneath the surface of 40° F. The navigation upon it is good for six to seven months of the year, and continues often into December.

The rich mines of copper and iron on its southern and northern borders are bringing to its shores a large population, and when the canal of the Sault St. Marie is completed, as it soon will be, the only obstruction to a free communication with the other great lakes will be removed, and the waters of Lake Superior will be furrowed by vessels from ports many hundred miles distant, to the junction of the St. Lawrence with the Atlantic.

About seventy miles to the east of St. Louis harbor is a noble and spacious bay, the entrance to which is protected by Madeline island, forming what is probably the best harbor on the lake, and from its many attractions must become a place of some importance. The extension of the proposed road to this place, may possibly be attended with some advantage should the ice at the opening of navigation in the spring remain for an inconvenient length of time in the harbor of St. Louis river.

The other places named are on Lake Michigan.

Of these, Green Bay affords the best natural harbor. Its importance as a lake port, will soon be greatly increased by the opening of a navigable communication with the waters of the Upper Mississippi.

This work which consists mainly of an improvement of the Neenah, and Wisconsin rivers has been in progress for some time under the control of the State. It has now passed into the hands of a corporation and will doubtless soon be accomplished, and if well done, will be the channel through which must pass a very large portion of the trade of Wisconsin, northern Illinois, Iowa and Minnesota. Upon this line of communication between Lake Winnebago and Green Bay or Depere (which last is in fact the head of lake navigation) is a fall in the outlet of the lake extending through several miles, of 160 feet. This great power, from its position and character, being subject to but little variation in consequence of the number and magnitude of the reservoirs that supply it, must in time become very valuable, and must add greatly to the importance of Green Bay as a place of business. It will eventually become the second city on Lake Michigan, Chicago being the first.

Milwaukee is now the largest town in Wisconsin. It is beautifully situated on the shore of the lake ninety miles north of Chicago, but is limited in its harbor accommodations.

So long as the region of country west of Lake Michigan was dependent solely upon the navigation of the Lakes for its means of access to the great markets. Milwaukee was well situated for business, being the most convenient port for an extensive and very fertile region of country; a region embracing the valley of Rock river in Wisconsin, which is probably not surpassed in its agricultural capabilities by any other district of equal extent in the Union.

The lines of railway which are now being constructed throughout all parts of the west will necessarily produce changes, to a certain extent, in the relative importance of towns, in that part of the country. The projected road from Milwaukee to LaCrosse and another to Madison will connect that city with the Great Pacific line in the best manner and afford an outlet to the Lake, mutually advantageous to that city and to the road. Other towns of less note on Lake Michigan, viz: Sheboygan, Racine, and Kenosha, have already taken measures that will secure to them a similar connection.

Chicago being near the southern extremity of Lake Michigan, is a point towards which the various lines of railway traversing the country west and north-west of the Great Lakes, must converge, and being also at the extreme limit of the unrivalled navigation of the lakes is the point of convergence for many other lines from the west around to the south, by which the business and the travel of a vast and very fertile region of country finds its shortest and easiest connection with the navigation of that lake. Add to this its very central position in respect to the most fertile portions of the Mississippi and St. Lawrence basins, and the generally favorable character of its climate, and it is quite certain of becoming in time the largest inland city of the Union. A city holding, in a great measure, an independent position, receiving its Asiatic productions from the west, its tropi-

cal productions from the south, the produce of the fur bearing countries direct from the north, and the trade of the Atlantic from the east. Thirty years hence the population of the region of country immediately dependent on Chicago as a commercial mart, will probably be greater than that which now sustains the city of New York, and being without a rival in its immediate vicinity, it is difficult to fix a limit to what will ultimately be either its actual or relative magnitude.

The present harbor accommodations of Chicago are included in the two branches of the Chicago river. One navigable four, and the other three miles from their junction, which is half a mile from the lake. In view of its future growth, an outside harbor will, in time, be required, and when formed, should be on a liberal scale and controlled by the city, for the best good of the various interests concerned.

The character of the navigation of the great lakes and the artificial channels connected with them, is now so well known as scarcely to require any notice in this place. The value of property transported upon them annually is said now to exceed two hundred millions of dollars, and is constantly and rapidly increasing. In cheapness it is not approached by any other mode of intercommunication. Three mills per ton per mile, from New York city to Chicago, for heavy goods, or \$5½ to \$7 per ton, is now an ordinary rate. This mode of communication with the Atlantic is available about seven months in the year. When the Erie canal is enlarged throughout its entire length, as it soon will be, and the ship canal, which is about to be constructed within our own limits, between Lake Erie and Ontario, is accomplished, this rate will be still further reduced. It will be still further reduced, also, as a consequence of the great increase in the business of the lakes, the improved character of the vessels, and of the harbors, by which the risk and charges of insurance will be lessened.

The reduction in the cost of transportation upon the lakes, and in the tolls upon the Erie canal, which have hitherto, from time to time, been made, has had the effect of attracting trade to the lakes from remote points, which, but for this reduction, would have sought some other route to the seaboard, and probably some other mart than New York. The future reductions which will be made, for the reasons stated above, will have the effect of widening the circle to such a degree that by far the largest portion of the Mississippi valley will be tributary to the lakes, and its productions, instead of seeking a southern market along the descending navigation of the Mississippi, will flow northwardly to the lakes and thence to the great emporium on the Hudson. The influence of climate and other causes will doubtless aid materially in producing this result.

The port upon the lakes which will receive a larger portion of this trade than any other is Chicago. This place is not only favored with a cheap navigation to the seaboard, but it has a very direct railroad communication with the leading cities in that direction, on which the cost of transportation by that mode of conveyance will be low in proportion as the amount of business will probably be greater than upon any other lines of equal extent proceeding from the interior to the seaboard.

The proposed northern route for a railroad to the Pacific, is not only peculiarly favored in respect to its termini on the lakes and on the Pacific, and in its position in respect to the Asiatic trade, but it is also greatly favored in its connections with the navigable waters of the Mississippi and Columbia, and also of the Red river of the north.

At St. Pauls, the capital of Minnesota, a short distance below the Falls of St. Anthony, it connects with the Mississippi, from whence a communication already exists with all parts of that river and of its tributaries accessible by steamboats. At the Falls of the Missouri, distant not more than 700 miles from the Pacific, a connection can be made with the navigable waters of the Missouri, and other connections may be made with it at convenient points throughout the entire distance of 500 miles from the Falls to the Mandan villages. These connections will be of great importance to the population of the Missouri valley and its tributaries, for the Missouri river, notwithstanding the rapidity of its current caused by the great inclination of its channel, compared with the Mississippi and Ohio, the limited duration of the periodical rise of its waters and the peculiar character of its banks, is still susceptible of very considerable improvement for the purposes of navigation, and will always possess very great value as a channel of intercommunication. The quantity of water flowing in it, is not likely to be materially lessened by the same cause which has affected many eastern rivers, namely, the removal of the forests, thus increasing the evaporation and rendering the contributions from their various tributaries less equable, and producing an irregularity in the flow unfavorable to navigation.

Although this irregularity is not so great on the Missouri as on many other rivers, the Ohio for instance, yet how to remedy it, is a problem of more difficult solution, probably, than upon that river: for if the flow were rendered nearly uniform by a resort to reservoirs, yet owing to the great declivity of its channel, and character of its bed and banks, it would, doubtless, be exceedingly difficult to give to the river a regime that would be permanent. Its direction and depth, even then, would be constantly changing and the attempts to correct this tendency would be attended with very considerable expense, and yet, as stated above, there is no doubt of its being so far improved, and at a reasonable cost, as to afford much greater facilities as a navigable channel than it now possesses.

West of the mountains, the Clarks river and the Columbia are, to a certain degree, navigable so as to be of much advantage, in this respect, to the portion of the country in which they are situated, and like the other rivers named will be a valuable auxiliary to the proposed railroad. At the points of connection with these navigable waters, places of business will spring up and grow into towns of large size. In this list St. Pauls, or St. Anthony, on the Mississippi, will hold very conspicuous place.

The intersection of the line with the Red river of the north will be another point of importance, as this river is navigable from the place of intersection to within a short distance of lake Winnipeg. Others will spring up where the line meets the Missouri, at or near the mouth of the Yellow

Stone and at the Great Falls, also at the forks on Clarks river, at Fort Colville and at Okanagan.

The Falls of the Missouri will become a place of much resort for those who are in search of the grand and beautiful in nature. The size of the Missouri at that place combined with its great descent of nearly 400 feet, distributed in a succession of rapids, cascades, and Falls through a distance of 15 to 20 miles, must, in connection with the mountain scenery, present many enchanting views, while above, a few miles from the Falls, is the *Gate of the Mountains* where the river, reduced in width, is fenced in for a distance of six miles by perpendicular walls of rock 1,000 to 1,200 feet in height. Between them the river flows quiet and deep, forming a scene of solemn grandeur in striking contrast with that presented by the Falls and Cascades below.

That the Falls of the Missouri will surpass in their attractions those of Niagara, when access is afforded to them by railroad, will not be asserted. The two differ in character, each being great in its own way, but the former, it is not doubted, will like the latter be ranked among the wonders of the world.

The country about these Falls, from the number of buffalo, elk, and other animals that are sustained there, must have a value as an agricultural region which will enable it to support a population sufficient in number to contribute to the maintenance of a town of some magnitude.

The hydraulic power of the river which is here so conveniently arranged for use, in connection with the navigable character of the river, both above and below the Falls for a long distance, must contribute greatly to the early settlement of the place and to the future improvement of all this portion of the valley of the Missouri.

To be continued.

South Side Railroad of Virginia.

At a recent meeting of the stockholders of this road detailed reports were presented by the chief engineer, treasurer, and subordinate engineers, showing the condition of the road, its expenses and receipts during the year ending Oct. 1st, 1853. The receipts were over \$26,000 more than the expenditures.

A resolution was passed authorizing the president to borrow \$300,000, to complete the road.

Mr Wm. Pannill was re-elected by a unanimous vote, president of the company, and Peter B. Wills and Samuel V. Watkins were elected directors on the part of the stockholders.

Population of Cleveland.

The Cleveland Herald contains a statement relative to the population of that city, which makes the population of Cleveland proper 31,214, and of Ohio city 9,992, making a total of 41,206. This census shows an increase of the population since 1850, of 14,180.

Pensacola and Georgia Railroad.

At a meeting of the stockholders of this road held on the 9th of November at Tallahassee, the following board of directors was elected.

Gen. Wm. Bailey, Hon. E. C. Cabell, of Jefferson; J. C. McGhee, of Madison; R. A. Shine, B. F. Whitner, Richard Hayward, Dr. Edward Bradford, Edward Houstoun, of Leon, and Arthur J. Forman of Gadsden.

Mileage of Engines--New York and New Haven Railroad.

The New York and New Haven Railroad Company operate 61 miles of road with an equipment of 22 locomotives. The performance of these engines, in miles run, has been given us by Mr. J. B. Simonds, the superintendent of motive power, and exceeds, we believe, that of many other roads, doing a lighter business over a more level track. The passenger business of the New York and New Haven road is very heavy, while the physical features of the line are quite as difficult as are admitted on first class passenger roads. The line is of a general undulating character, the extreme grades being of 50 feet per mile; and the curves are also numerous and of short radii. The engines are all from one establishment, that of Rogers, Ketchum & Grosvenor's, and are all of about the same pattern. Every engine, without an exception, is outside connected. The condition of the engines is creditable to the road and especially to those immediately entrusted with their maintenance and repairs. We have a survey in progress, which we shall soon publish, giving a very interesting statement of the dimensions and details of these engines; such an one as railroad companies and others will find a useful illustration of a first class equipment.

No. of Engine.	Miles run in 1851.	Miles run in 1852.	Miles run first mo. in 1853.
No. 1.....	28,481	25,528	18,853
" 2.....	15,948	25,082	18,857
" 3.....	15,916	26,776	22,147
" 4.....	19,644	22,510	25,630
" 5.....	17,918	20,204	9,646
" 6.....	22,789	25,406	9,954
" 7.....	14,943	24,652	768
" 8.....	18,454	25,442	15,991
" 9.....	28,968	28,457	14,521
" 10.....	17,035	11,623	20,220
" 11.....	17,234	30,904	23,361
" 12.....	31,124	25,157	19,505
" 13.....	32,205	29,232	26,964
" 14.....	27,555	30,391	22,054
" 15.....	36,321	25,161	15,390
" 16.....	36,554	33,039	19,961
" 17.....	28,354	30,366	25,727
" 18.....	27,392	34,369	20,037
" 19.....	25,975	35,091	24,359
" 20.....	31,161	21,299	24,634
Farmington.....	10,611	8,085	—
Cheshire.....	17,372	21,781	—
Bristol.....	32,138	31,140	—
No. 21.....	—	—	12,734
" 22.....	—	—	13,488

415,801

These performances are extremely large, the mileage for the first nine months of the present year being of the average rate of 25,200 miles per engine per year. Of the engines in use the present year, Nos. 21 and 22 have been but a short time in use, the former having been placed on the road on May 23d, and the latter June 3d. Engine No. 12, showing a performance in 1852 of 25,157 miles, was in use during that year but nine months and eight days. The performance of the same engine, of 19,505 miles up to Sept. 30th, of the present year, was made after April 12, previous to which time the engine was under repair. The largest monthly performance during the present year is that of No. 17, which, in May last, ran 3,897 miles, equal to 150 miles per day for 26 days. Two other performances of other engines have been as high, each, as 3,822 miles in a single month.

Z. C.

The Cast Iron Slip Tire.

We learn that this improvement continues to give entire satisfaction on those lines which have had it in use since its first application. And other roads, which have had equipments of engines provided throughout with wrought tires, are now ordering chilled tires in considerable quantities. The economy of the tire and its perfect reliability under all circumstances are the merits through which it has gained its position. Its cost per pound, exclusive of whatever may be paid for the right to use it, is but *one third to one fourth* that of the wrought tire, while the expense of its application, including detention of engine, etc., is so small as hardly to bear comparison. As to its safety, it never breaks, unless involved in some general accident to the engine, while its adhesion is such that those who have it most in use can discover no difference in the train it is able to draw. The Baltimore and Ohio presents an instance of a first class road having the largest equipment of engines of any road in America, greater even than that of the New York and Erie road, and operating the most difficult transportation of any in the country; while the whole equipment of this line is provided with the improved tires, or with whole chilled wheels. In this equipment we find a large majority to consist of the heaviest engines in use, having boilers and cylinders of *extreme* capacity. Boilers having twelve hundred square feet of heating surface, and cylinders of nineteen and twenty inches diameter are the standards for the heavy stock and burden engines. All of the heavy express passenger engines are included in the list of engines using *chilled tires*.

These tires were generally adopted on this line ten years ago, and the officers of the road, including the chief engineer, general superintendent and the master of machinery, have often expressed themselves in the strongest terms in favor of the improvement. The late superintendent of the road, Wm. Parker, Esq., has within the past month informed us that the road still continues to use the chilled tire, "in preference and over all others."

The present master of machinery, Mr. S. J. Hayes, says, "we are still using the chilled cast iron tires under our passenger engines. We have had no difficulty by any of them breaking, and deem them perfectly reliable." The whole of the passenger business between Baltimore and Washington is also performed by these tires. The Philadelphia, Wilmington and Baltimore road has used these tires of as large diameter as *six feet*, on heavy trains and without failure.

The Little Miami railroad, in Ohio, made arrangements several years ago for the application of the chilled tires, and since that time have had them in successful use. The engine "Ohio," employed on the extreme heavy grades between Fulton and Cincinnati, has run three years upon a set of three and a half feet Bush & Lobdell tires. The appearance of the tires is still good and shows but a slight wear. No flat spots, common with some kinds of wrought tires, can be seen upon their surfaces.

The superintendent of the Little Miami, and Columbus and Xenia roads, Wm. H. Clement, Esq., says "we have in use three sets of patent slip chilled tire on freight engines with three pairs of three and a half feet connected driving wheels. One set has been in use about three years and is

yet in a serviceable condition. I consider the tire much more durable and of consequence more economical than the wrought tire for freight engines, (we have not yet used them on passenger engines) and we have found in practice that as large a train can be hauled as with any other tire."

John Durand, Esq., superintendent of the Cleveland and Pittsburgh road, who has two sets of tires and two sets of whole chilled drivers in use, says in reference to the chilled tire as applied to one of his gravel engines, "for this particular service I like the chilled tire well, because the engine is necessarily run backward about as much as forward and the flanges are not affected as are those of the wrought iron tire. Hence durability is decidedly in favor of the chilled tire for this service."

Upon all of the other roads where the chilled tires have been tested, the officers have invariably expressed themselves (verbally where not otherwise) in favor of them. The Cleveland, Columbus and Cincinnati, Ohio and Pennsylvania, Cincinnati, Hamilton and Dayton, Mad River and L. Erie, and others among western roads, have used these tires long and successfully.

The Galena and Chicago, Cleveland and Toledo, Central Ohio, Buffalo and State Line and other roads are now supplying themselves with tires of this kind from the foundry of Bush and Lobdell, at Wilmington, Delaware.

Suspension of Engine Springs.

By ZERAH COLBURN.

The absorption of shocks by the driving springs of locomotives may, by a proper connection of the springs, be distributed through the whole elastic system intervening between all the driving wheels and the engine frame. In English engines, each pair of wheels has its springs, independent of the others, but in our own engines a distribution of shocks is generally made, by equalizing levers or springs, between the wheels on the same side of the engine. The points of connection between the springs and the framing are brought, sometimes, between the drivers, and at others are made both at the latter point and at the outer ends of the springs. The connection, independent of the elastic influence of the springs themselves, is generally rigid, but in some cases an intermediate spring is employed in place of the rigid equalizing lever, while the outer ends of the springs are connected to the frame with intervening discs of india rubber. The elastic connection of rubber cushions and equalizing springs, has been tested on many roads, and has been generally regarded as an improvement in the working of the engine.

The springs, in the ordinary mode of suspension, are so placed as to occupy much room between the furnace and the driving wheels, and it may be said that with the square fire box they occupy an amount of space which would afford one-sixth more than the present amount of grate area. It is true that the frame, as usually made, occupies as much room as the springs, but the frame can be made thin and placed edgewise, and at the same time possess greater stiffness than the present form. This edge frame is becoming introduced by most engine builders, but the driving springs present an obstacle in the way of obtaining the additional width of grate which the disposition of the frame invites. The forward drivers are gene-

rally so far removed from the furnace that their springs are not in the way, but the back driving springs must, if connected by the equalizing levers extend past the hind edge of the furnace and lie between its sides and the driving wheels. In the English engines, having independent springs over each pair of wheels, the forward springs being out of the way of the furnace, the back wheels are eased by a transverse spring passing from one axle box to the other. In some recent English engines with coupled drivers, the springs are placed beneath the axle boxes and are connected thereto by links; the ends of the springs have their fulcrums against the under side of the frame and are connected together in the American manner. This plan has been adopted in some engines in our own country. Its effects, of course, the same distribution of shocks as with the overhung spring, transferring that portion of the shock, not immediately absorbed by the one spring, to the next spring only and to the frame. For the end of availing of the edge frame and the wide grate, a single spring, for the two drivers of one side of the engine, has been secured on the crown sheet of the furnace. This causes a strain, in the same direction, and in addition, to that from the steam pressure within the boiler, of about ten tons. This, too, is the constant weight, exclusive of the effects of jolts and concussions.

With the outside connection, an additional advantage may be obtained in such disposition of the springs as will take them away from over the boxes; as with the ordinary suspension of the springs they form a limit to the reduction of the height of the boiler, where the latter is of large diameter. In Rogers' outside connections, having boilers of over four feet in diameter outside of the lagging, the under side of the boiler can come no nearer than eight inches from the driving axle without bringing the wooden lagging in contact with the springs.

It may be said, therefore, that the present mode of spring suspension has at least three objectionable features; first, in limiting the area of grate, with a given length of furnace, to one-seventh less than the extent attainable with a different arrangement of springs and frame. Second, in limiting, by six inches, the reduction of the height of the under side of the boiler. Third in effecting a distribution of the shocks between but two drivers instead of all four. The last objection is of sufficient importance to justify an effort for arranging the springs with reference to a complete distribution.

An arrangement which I have proposed for this purpose, as well as for avoiding all the objections enumerated against the usual mode of suspension, consists of two transverse springs, one beneath each axle, connected each, by straps at their centers to a carrying beam lying just beneath the spring, and having the ends of the beams connected with equalizing levers, having fulcrums on the lower edge of the furnace side. The connections of the springs and carrying beams to be made by broad straps, so that the weight may always keep the carriers level. With such a mode of suspension, two springs would be used in the place of four; they would be longer and easier than the present springs, while there would be but two points of connection between the springs and boiler, instead of the present number of six.

To Correspondents.

The favors of several of our correspondents, containing information or inquiries of general interest in matters of mechanical engineering, have for some time claimed our acknowledgement, and we propose to devote to them a few words in this place in the room of more formal and personal replies.

J. J. F., Boston.—We learn with satisfaction that our articles reflecting on the character of the motive power of New England roads are beginning to be appreciated in your section. A little of the spirit of competition will introduce many improvements in the railway machinery of the Massachusetts railroads.

H. R., Philad.—An upright engine of about 20 horses' power will suffice for operating the machinery for the engine repairs of such a road. It is cheaper to purchase on the spot than to ship from here west.

R. S. T., Pittsburgh.—We are obliged to you for the information relative to the performance of the engine named. Such notes often prove valuable to us in discussions of the resistances overcome by locomotives.

T. S. St. Louis.—We do not claim the adhesion of the chilled tire to be fully equal to that of the wrought tire, but with the adhesive weight of the engine of which you speak you will find it to equal the steam power of the engine.—There is too much weight to cause any fear of slipping the wheels.

J. McC.—Baltimore.—Purchase Clark's Railway Machinery; George Taylor, Agent, 117 Fulton st., New York.

R. B. New York.—We are not aware that Mr. Milholland has ever made any practical statement of the economy attending the use of his form of boiler. Our opinion is that the draught is impaired by breaking the circulation midway of the tubes.

Z. C.

A. H., New York. We have had the same inquiry often made to us.

The draughtsmen and designers of the principal Locomotive shops in the country are as follows: Portland Locomotive Works, Portland, Me. F. W. Cummings.

Amoskeag Locomotive Works, Manchester, N. H. J. M. Stone.

Lowell Machine Shop, Lowell, Mass. — Gates.

Essex Co. Lawrence, Mass. Chas. Hastings.

Boston Locomotive Works, Boston, Mass. J. F. Hinkley.

Seth Wilmarth, Boston, Mass. Sam'l Hay.

Taunton Locomotive Company, Taunton, Mass. P. J. Perrin.

Wm. Mason & Co., Taunton, Mass. C. F. Thomas. Rogers, Ketchum & Grosvenor, Paterson, N. J. Hypolite Uhry.

New Jersey Locomotive and Machine Co., Paterson, Thos. W. Bayes.

Richard Norris & Son, Phila., Penn. Richd. Otley.

Smith & Perkins, Alexandria, Va. G. H. Bailey.

Tredegar Works, Richmond, Va. J. Swiney.

Niles & Co., Cincinnati, Ohio. N. G. Thom.

A. L. Greer & Co., Covington, Ky. D. H. Feger.

Cuyahoga Works, Cleveland, Ohio. — Rogers.

H. H. Scoville & Son, Chicago, Ill. Wm. H. Scoville.

The master mechanics of the principal railroads, so far as we have their addresses, are as below.

Boston & Lowell, G. B. King, East Cambridge, Mass.

Boston & Providence, G. S. Griggs, Roxbury, Mass.

Boston & Maine, N. G. Paul, Boston, Mass.

Boston & Worcester, A. S. Adams, Boston, Mass.

Fitchburg, Oliver Ayres, Boston, Mass.

Old Colony, — Bullock, Boston, Mass.

Eastern, H. W. Farley, East Boston, Mass.

Western, Wilson Eddy, Springfield, Mass.

Prov. & Worcester, J. H. Winslow, Providence, R.I.

N. Y. & New Haven, G. B. Simonds, New Haven, Conn.

N. York and Erie, Harvey Rice, Piermont, N. Y.

Jas. B. Gregg, Susquehanna, Pa.

Penna. Cent. R. R. — — —, Altoona, Pa.

Wm. Stamp, Pittsburgh, Pa.

Baltimore & Ohio, S. J. Hayes, Baltimore, Md.

Cleveland & Columbus, Wm. F. Smith, Cleveland, O.

Cleveland & Pittsburgh, Jacob Hovey, Cleveland, O.

Ohio & Penna., G. W. Glass, Pittsburgh, Pa.

Little Miami, C. F. Ham, Cincinnati, O.

C. Hamilton & Dayton, Daniel McLaren, Cincinnati, O.

Cleveland & Toledo, J. A. Jackman, Norwalk, O.

Michigan Central, S. J. Newhall, Detroit.

Mich Southern, Saml. Cummings, Adrian, Mich.

New Albany and Salem, Cephas Manning, Mich. City, Ia.

Chicago & Galena, John Ebbert, Chicago, Ill.

Ill. Central, M. W. Mason, Chicago, Ill.

Had we a full list for all the roads in the country we should be happy to publish it. Z. C.

Useful Weight of Locomotives.

When it is considered that the power of the locomotive is made up of two distinct elements, a steam power and an adhesive power; a relative power and a progressive power; in other words traction and adhesion, it would be supposed that the consideration of both of these elements would be included in the designs of the engineer. The first element is that, however, for which provision is especially made, the necessary strength and weight of parts being allowed according to the required capacity of these parts for generating or communicating pressures. This weight is almost always such that its contact with the rails produces adhesion sufficient to render the steam power available under ordinary circumstances. Indeed, in the usual circumstances of working, the adhesion derived from the whole weight of the machinery is in excess, and a considerable portion of it is consequently placed upon trucks to relieve the rails from concentration of weight.

The English passenger engines have a general allowance of about one half of their whole weight for adhesion. This may be given as the general proposition without reference to instances where a greater or less allowance is carried upon the driving wheels. In America the passenger engine generally has two-thirds of its whole weight for adhesion. These proportions are so well established, especially the latter one in our own country, that it may be said that at least one-third of the weight of a passenger engine is "dead weight" so far as its adhesive efficiency is concerned. With freight engines, having smaller wheels, and working at a greater pressure in the cylinder, more useful weight is probably necessary, and yet a large number of the most successful freight engines, working on heavy grades and up to their full capacity, have but from two-thirds to three-

fourths of their weight for adhesion. The heaviest engines employed upon the extreme grades of the Baltimore and Ohio road weigh 30 tons, of which $7\frac{1}{2}$ tons, or 25 per cent. is truck weight. The most powerful engines of the Philadelphia and Reading road weigh 26 to 28 tons, of which the same proportion of one-fourth is truck weight. A very large proportion of the heaviest freight engines of the New York and Erie road have as much as one-third of their whole weight upon the trucks; and about the same proportion of truck weight prevails among the freight engines of the Western Railroad of Massachusetts, the Northern Railroad of New York, and many other roads doing a very heavy freight business. So far then as we regard the ordinary working of locomotive engines, we are safe in assuming that the necessary strength and capacity of the parts for any required traction, involves by their own weight, not only the necessary adhesion, but a considerable surplus besides. And in the range of successful engines, both for passengers and freight, we find this surplus to be from one-fourth to one-half of the entire weight, and so much is therefore dead weight so far as its adhesive efficiency is concerned.

We do not deny that there are extreme cases, arising from great cylinder capacity, working under full pressure, and in cases of bad or slippery rails, where the entire weight of the engine may be insufficient, but such cases are rare and do not occur in the demands of ordinary transportation. The usual case presents the limits of "dead weight" above indicated.

We are then to inquire what disposition is made of this surplus. The truck, which serves the double purpose of relieving the driving wheels and rails from concentration of weight and of guiding and steadying the engine, is generally loaded with all that is required beyond the wants of the adhesion. The position of the truck relative to the drivers of course determines the proportion carried, and their position may be so varied that engines, having the same number of truck and driving wheels, may have the same adhesion, although their whole weight is widely different. By clustering the drivers near the hind end of the engine and placing the truck far back the adhesive weight is reduced; by extending the driving wheel base and placing the truck far forward the adhesion is increased.

We should then consider the influence of weight upon the wear both of the machinery and the rails. The weight of the whole engine, with the exception only of the wheels, axles and boxes, and a part of the connecting and eccentric rods, being suspended on springs, the tension to which the latter are subject is of course increased with an increase of their load, and the irregular force of their vibration is aggravated. The friction of the great number of parts of the engine, being the source of the wear and tear of the machinery, is increased of course by an increase of weight, and construction, working and management being equal, is probably increased nearly in exact proportion to such increase. The tires and trucks however receive the most direct and severe wear, while their repairs and renewals are among the most expensive items of maintenance.

Upon the road the wear is hastened in a proportion greater than the direct increase of weight, as when this reaches the economical resistance of

the rail, either against crushing or deflection, the wear is very rapidly increased. The greater violence of the vibration upon the springs is an obvious aggravation of the effects of increased weight.

It is easy to see, after having considered the source, disposition and influence of dead weight, that it is to be avoided so far as is consistent with a proper capacity and strength of the machinery. This is to be done by employing materials in such a manner as to be most available in resisting strain, and of such character as to possess the strongest cohesion.

As to the disposition of materials, we may say that the inside connection involves dead weight by reason of the weight of the crank and extra weight of parts connected immediately with it. A boiler must have much dead weight, to possess the proper strength, where both ends are confined to the frame, or where the springs are suspended, or the draw bar is attached to its shell. A flat frame must be heavier, to possess equal strength, than the thin edge frame, braced laterally. An independent cut off and a half stroke pump involve dead weight, as compared with the link motion and the full stroke pumps, of equal or superior efficiency. Simplicity reduces dead weight.

In the character of the materials used in locomotives there is often much room for a reduction of dead weight. Cast iron, in many instances, is preferred for its economy, and is often made to compensate in weight what it lacks of cohesion. Even in wrought iron the strength is not always regarded where its cost is considered, and, in consequence, sufficient strength is had only by the allowance of increased weight. The use of cast iron, in place of wrought iron for driving wheels, pedestals, foot boards and draw irons, cross heads, pistons, dome covers, steam pipes, rockers, etc., involves both risk of failure, and excess of useful weight. Boiler iron of inferior quality, and of only one-sixteenth inch increased thickness, as the necessary compensation for equal strength would involve about half a ton of weight in a boiler of ordinary dimensions. The difference of a ton, however, is often made in the weight of boilers of equal size and strength, by reason of the difference in the materials of their construction. Lowmoor, Bowling, or best cold blast charcoal Pennsylvania iron, of one-fourth inch thickness is now much used in preference to inferior English and American iron of three-eighth inch thickness.

Many of the inside connected engines built in New England afford useful illustrations of excessive weight. Their cranks, of 7 inches diameter, have about six hundred pounds more weight, than a straight axle of equal strength. Their jaws, of cast iron, weighing two hundred and fifty pounds each, are four hundred pounds in excess; their foot boards weighing 650 lbs. are 400 lbs. in excess; cast iron steam pipes, dome covers, pistons, etc., say five hundred pounds extra; their separate cut off often six hundred pounds in excess; short stroke pump two hundred pounds; outer frame and railing seven hundred lbs.; and an excess of about fifteen hundred pounds, extra weight in boiler, from the extra thickness of plates owing generally to the ordinary character of the iron. These items alone embrace four thousand nine hundred pounds, or nearly two and a half tons, of weight, almost utterly useless for strength, ca-

capacity or adhesion. This does not include the driving wheels, the weight of which could be reduced nearly or quite one ton if wrought iron was used.

These considerations are of much importance in the adaptation of first class passenger engines, already as heavy as are suited to our roads, and yet hardly adequate in many cases for the task imposed. The addition of from two to three and a half tons of useful weight, in place of cumbersome arrangements of no utility, and this too, without materially increasing the wear, is an important addition to the capacity and economy of our motive power.

Wilmington and Manchester Railroad.

We are indebted to an attentive correspondent for the following description of the operation of sinking iron piles, by the pneumatic process, now employed by the above company, for the bridge over the Great Pedee river. This river is the great obstacle to be surmounted in the construction of the road, as it flows over a bed of loose, shifting sand, and is subject to great and sudden floods. The construction of piers by the ordinary process of coffer dams, was a matter of great difficulty, especially as the unhealthiness of the locality allowed of operations only during the winter months, which is the rainy season. For these reasons Mr. Fleming, the company's engineer, determined to adopt what is called the pneumatic process for sinking cast iron tubes, which are to be filled with concrete and firmly braced together. We are glad to hear that he has now nearly completed his task. We shall expect soon to see the cars running over the whole line of a road which is to unite the Northern and Southern systems of railway. There is no road in the United States, in the early completion of which the public are more interested, or which has a better prospect of a lucrative business.

Below will be found the communication alluded to.

For the Railroad Journal.

SINKING PILES BY PNEUMATIC PROCESS.

Mr. Editor: Having been much interested in a recent visit to the site of the Railroad Bridge, now being constructed on the Wilmington and Manchester Railroad, across the Peedee river in Marion District, South Carolina, I send you a short account of it, as it may be interesting to some of your readers.

The difficulties encountered in building a permanent bridge across large streams in the southern country are very great. Frequently there is no suitable building stone convenient; the foundations are bad, and in many instances, the bed of the river is a shifting sand or gravel, intermixed with logs and driftwood. Even if the foundations were good, and stone convenient, the expense and risk of constructing coffer dams, (from the great and sudden freshets the rivers are subject to,) render the construction of stone piers extremely difficult and hazardous. Hence, most of our bridges are built upon wooden piles; a very unsubstantial and objectionable mode.

The managers of this road, with an enterprise and perseverance deserving of success, and which they have shown in all they have undertaken, were induced to adopt the plan of sinking cast iron cylinders for the piers of the bridge, using atmospheric pressure by a process known as

Dr. Potts patent. The cylinders used are six feet in the outer diameter and two inches thickness of shell, cast in sections of nine feet in length, with an inner flange by which they are bolted together, with movable air tight tops. Each section weighs about $6\frac{1}{2}$ tons, and was cast at the West Point Foundry, N. Y.

A small steam engine of eight horse power was used for working the pumps. The process of creating a vacuum in the cylinder, and sinking it by atmospheric pressure, was found to be ineffectual after the cylinder was sunk so as to have about five feet of sand within it; hence arose the necessity of resorting to other means, and the following was adopted:

By an india rubber tube leading from the air pumps attached to the engine, air is forced into the cylinders until a pressure of 15 lbs. to the square inch is obtained within. The effect of this is to expel all the water, not only from the interior of the cylinders, but from the sand several feet below its surface. By means of an air lock, (described below,) the workmen then descend into the cylinder and excavate the sand, logs, etc., removing them by means of bags through the air lock and wasting them into the river. After excavating within a foot or two of the lower edge of the cylinder, or until the air begins to escape below, several cocks are opened at the same moment, and the condensed air within the cylinder being allowed to escape rapidly, the cylinder sinks gradually by its own weight.

An air lock, is a contrivance, by means of which communication is established between the open air and the interior of the cylinder, without permitting the surplus air to escape. It is made as follows:

Through the cap of the cylinder pile, a cast iron semi-cylinder, six feet long and four feet in diameter, is inserted; two feet being above, and four feet below, the plate head or cap. In the top of the lock is a man hole with a valve door opening downwards. In the plane side of the lock near the bottom is another man hole, with a valve door opening into the cylinder. It is used as follows: The workmen, tools, and bags are first passed through the man hole into the air lock chamber, and the valve door closed. The cock into the pile cylinder is then opened, the dense air rushes into the air lock chamber, closes the outer valve door firmly, and causes the door into the cylinder to open. The workmen then descend by ladder to the bottom of the cylinder and shovel the pile sand into bags, which, when full, are passed into the air lock chamber. The door thereto being shut, the signal is given to the man on the outside, who opens the cock from the air lock to the open air, permits the dense air to escape, and the upper valve door falls open. The bags are then taken out, emptied, and returned, as at first described. The pumps are kept constantly at work to supply fresh air; the surplus air escaping by a siphon tube. The workmen remain several hours within the cylinder, working in the dense atmosphere without inconvenience. Although the sensations on first going in and coming out, are unpleasant, they soon become accustomed to it.

The work is under the charge of Mr. L. J. Fleming, the accomplished and enterprising engineer of a company, assisted by Mr. Alexander Holmstrom, from the West Point Foundry. Great praise is

due to all concerned for the perseverance and success in this novel undertaking. Five cylinders have been sunk, seven being the whole number required. T. P. H.

American Railroad Journal.

Saturday, December 3, 1883.

Share and Money Market.

There has been a heavy stock market the past week. The leading fancies have receded some two or three per cent. Money is comparatively easy on call, though there is little disposition to take hold of new enterprises, or to purchase the securities of works in progress. The improvement noticed in our last does not appear to be so permanent as was hoped. The commercial community, however, are gradually getting into an easy condition. The wants of our railroad companies continue to press the market, but their dividends must soon begin to be less, from the completion of some lines, and the curtailment of work upon others. At the present high rates for money very little new work will be commenced.

The bank statement for Nov. 26 shows an increase of loans for the first time since Aug. 6th. The comparative statement is as follows:

	Nov. 19.	Nov. 26.
Loans.....	\$83,717,662	\$84,802,538
Specie.....	13,691,824	13,343,196
Circulation.....	9,161,443	9,732,769
Deposits.....	57,446,424	58,672,076

The following is a statement of the deposits and coinage at the Philadelphia Mint for the month of November:

GOLD.		
	Pieces.	Value.
Double Eagles.....	20,912	\$418,248
Eagles.....		
Half Eagles.....		
Gr. Eagles.....	63,612	159,030
Gold Eagles.....	355,238	355,238
	439,762	\$932,508
In bars.....		827,979
Total.....		\$1,760,487

SILVER.		
Half dollars.....	160,000	\$80,000
Quar. dollars.....	1,352,000	333,000
Dimes.....	2,960,020	296,000
Half dimes.....	3,120,000	126,000
Total.....	7,592,000	\$870,000

COPPER.		
Cents.....	268,844	\$2,688 44

BULLION DEPOSITED.		
Gold bullion deposited.....		\$3,650,000
Silver bullion deposited.....		280,000

Repairs of Rails.

An attentive correspondent in Boston informs us that the Cheshire railroad company in New Hampshire have, for several months past, made a practice of mending the ends of their rails with Swedes iron. A rail, after having become crushed and deflected at the ends from long use, is taken up, the battered portions cut off, and a new portion welded on, which, from being of harder material than the rest, preserves the rail for a long time. We understand that several miles of track have been so repaired and that other companies have adopted the plan, from which they anticipate a considerable saving in the quantity of iron used for renewals.

Railway Share List,

Compiled from the latest returns—corrected every Wednesday—on a par valuation of \$100.

NAME OF COMPANY.	Miles open.	Capital paid in.	Funded debt.	Tot. cost of road and equipm't.	Gross Earnings for last official year.	Net Earnings for last official yr.	Dividend for do.	Price of Shares.
Atlantic and St. Lawrence... Maine.	150	1,538,100	2,978,700	5,150,278	254,743	113,520	none	80
Androscoggin and Kennebec.. "	55	809,878	1,016,500	2,064,458	140,561	80,053	none	30
Kennebec and Portland..... "	72	962,621	291,80	2,514,067	168,114	100,552	none	41
Port., Saco and Portsmouth.. "	61	1,355,500	123,884	1,459,384	208,669	.....	6	99½
York and Cumberland..... "	20	285,747	341,100	718,005	23,946	11,256	none	24
Boston, Concord and Montreal. N. H.	93	1,649,278	622,200	2,540,217	150,538	79,659	none	85
Concord	35	1,485,000	none.	1,485,000	305,805	141,836	8	104½
Cheshire	54	2,078,625	720,900	3,002,094	287,768	55,266	5	48
Northern	82	3,016,634	.....	.....	328,782	163,075	5	47½
Manchester and Lawrence.... "	24	717,543	.....	.....	.....	.....	6½	88
Nashua and Lowell..... "	15	600,000	none.	651,214	182,545	51,513	8	109
Portsmouth and Concord.... "	47	.....	.....	1,400,000	.....	.....	none	.....
Sullivan..... "	26	.....	.....	673,500	.....	.....	none	21
Connecticut and Passumpsic.. Vt.	61	1,097,600	550,000	1,745,516	.....	.....	none	37
Rutland	120	2,486,000	2,429,100	5,577,467	495,397	266,539	none	25
Vermont Central..... "	117	8,500,000	3,500,000	12,000,000	.....	.....	.....	12½
Vermont and Canada..... "	47	1,500,000	.....	1,500,000	Leased to the Vt. C.	.....	Cent.	100
Western Vermont..... "	51	392,000	700,000	.....	Recently opened.	.....	none	.....
Vermont Valley	24	.....	.....	.....	.....	.....	none	.....
Boston and Lowell..... Mass.	28	1,890,000	.....	1,995,249	388,108	130,881	7½	92½
Boston and Maine..... "	83	4,076,974	150,000	4,092,927	659,001	338,215	7	103½
Boston and Providence..... "	53	3,160,390	390,000	3,546,214	469,656	227,434	6	87½
Boston and Worcester..... "	69	4,500,000	425,000	4,925,967	758,819	381,296	7	101½
Cape Cod branch..... "	28	421,295	171,800	633,906	60,743	30,056	2½	45
Connecticut River..... "	52	1,591,100	193,500	1,801,946	229,004	72,028	5	55
Eastern..... "	75	2,850,000	500,000	3,120,391	488,793	241,017	7½	91½
Fall River..... "	42	1,050,000	none.	1,050,000	229,445	99,589	8	106½
Fitchburg..... "	66	3,540,000	112,805	3,623,073	574,574	232,787	6	95½
New Bedford and Taunton... "	20	500,000	none.	520,475	164,280	43,950	7½	117
Norfolk County..... "	26	547,015	819,743	1,245,927	67,251	23,415	none	60
Old Colony..... "	45	1,964,070	282,300	2,293,534	322,213	101,510	none	90½
Taunton Branch..... "	12	250,000	none.	307,186	137,406	24,399	8	.....
Vermont and Massachusetts.. "	77	2,140,536	1,001,500	3,203,338	218,679	18,648	none	13½
Worcester and Nashua..... "	45	1,134,000	171,210	1,321,945	162,109	66,900	4½	59½
Western..... "	155	5,150,000	5,319,520	9,953,759	1,339,873	683,194	6½	97½
Stonington..... R. I.	50	.....	467,700	.....	240,572	110,892	.....	65
Providence and Worcester... "	40	1,457,500	300,000	1,731,498	253,690	139,514	6	.....
Canal..... Conn.	45	922,500	500,000	1,400,000	.....	.....	4	65
Hartford and New Haven.... "	72	2,350,000	800,000	3,150,000	639,529	294,269	10	118½
Housatonic..... "	110	.....	.....	2,500,000	329,041	168,902	none	.....
Hartford, Prov. and Fishkill. "	50	.....	.....	In progress	69,629	.....	none	.....
New London, Wil. and Palmer "	66	558,861	800,000	1,511,111	114,410	.....	.....	.....
New York and New Haven... "	61	3,000,000	1,641,000	4,978,487	806,713	428,173	7	102
Naugatuck	62	926,000	440,000	.....	.....	.....	8	.....
New London and New Haven. "	55	750,500	650,000	1,380,610	Recently opened.	.....	none	52
Norwich and Worcester..... "	54	2,121,110	701,600	2,596,488	267,561	116,965	4½	55
Buffalo and New York City... N. Y.	91	900,000	1,550,000	2,550,500	Recently opened.	.....	none	85
Buffalo, Corning and N. York. "	182	.....	.....	In progress	.....	.....	none	65
Buffalo and State Line..... "	69	879,636	872,000	1,921,270	Recently opened.	.....	.....	130
Canandaigua and Niagara F.. "	50	.....	.....	In progress	.....	.....	.....	.....
Canandaigua and Elmira.... "	47	425,509	582,400	987,627	76,760	39,360	none	68
Cayuga and Susquehanna.... "	35	637,000	400,000	1,070,786	74,241	23,496	none	.....
Erie, (New York and Erie).... "	464	9,612,995	24,003,865	31,301,806	3,537,766	1,691,623	7	77½
Hudson River..... "	144	3,740,515	7,046,395	10,527,654	1,063,659	338,783	none	68½
Harlem	130	4,725,250	977,463	6,102,935	681,445	324,494	5	54½
Long Island..... "	95	1,875,148	516,246	2,446,391	205,068	44,070	none	30½
New York Central..... "	504	22,858,600	2,111,824	24,974,423	.....	.....	.....	115½
Ogdensburgh (Northern).... "	118	1,579,969	2,969,760	5,133,834	480,137	195,847	none	28
Oswego and Syracuse..... "	35	350,000	201,500	607,803	90,616	43,609	4	70
Plattsburg and Montreal.... "	23	174,042	131,000	349,775	Recently opened.	.....	none	.....
Rensselaer and Saratoga.... "	25	610,000	25,000	774,495	213,078	96,737	.....	.....
Rutland and Washington.... "	60	850,000	400,000	1,250,000	Recently opened.	.....	.....	.....
Saratoga and Washington.... "	41	899,800	940,000	1,832,945	173,545	135,017	none	30
Troy and Rutland..... "	32	237,690	100,000	329,677	Recently opened.	.....	.....	33
Troy and Boston..... "	39	430,938	700,000	1,043,357	Recently opened.	.....	none	.....
Watertown and Rome..... "	96	1,011,940	650,000	1,693,711	225,152	116,706	8	94
Camden and Amboy..... N. J.	65	1,500,000	.....	4,327,400	1,888,385	478,413	10	145
Morris and Essex..... "	45	1,022,420	128,000	1,220,325	149,941	79,252	4	.....
New Jersey..... "	31	2,197,840	476,000	3,245,720	603,942	316,259	10	131
New Jersey Central..... "	63	986,106	1,500,000	2,379,880	260,899	124,740	3½	.....
Cumberland Valley..... Penn.	56	1,184,500	13,000	1,265,143	118,617	76,890	5	.....
Erie and North East..... "	20	600,000	.....	750,000	Recently opened.	.....	.....	125
Harrisburgh and Lancaster.. "	36	830,100	713,227	1,702,523	265,327	106,820	8	.....
Philadelphia and Reading.... "	95	6,656,332	10,427,800	17,141,987	2,480,626	1,251,987	7	79½
Philad., Wilmington and Balt. "	98	3,850,000	2,403,276	6,813,839	607,785	383,501	5	76

Railway Share List,

Compiled from the latest returns—corrected every Wednesday—on a par valuation of \$100.

NAME OF COMPANY.	Miles open.	Capital paid in.	Funded debt.	Tot. cost of road and equipment.	Gross Earnings for last official year.	Net earnings for last official yr.	Dividend for do.	Price of shares.
Pennsylvania Central..... Penn.	250	9,768,155	5,000,000	13,600,000	1,943,827	617,625	....	95
Philadelphia and Trenton.... "	30	.....	.....	.....	.....	.....	.....	.....
Pennsylvania Coal Co..... "	47	.....	.....	.....	.....	.....	.....	.....
Baltimore and Ohio..... Md.	381	9,188,300	9,827,123	19,542,307	1,325,563	615,384	7	56 1/2
Washington branch..... "	38	1,650,000	.....	1,650,000	348,622	216,237	8	.....
Baltimore and Susquehanna.. "	57	.....	.....	.....	413,673	152,536	.....	.....
Alexandria and Orange..... Va.	65	.....	.....	In prog.	.....	.....	.....	.....
Manassas Gap..... "	27	.....	.....	In prog.	.....	.....	.....	.....
Petersburgh..... "	64	769,000	173,887	1,163,928	227,593	72,370	7	77
Richmond and Danville.... "	73	1,372,324	200,000	In prog.	.....	.....	.....	70
Richmond and Petersburg.. "	22	685,000	.....	1,100,000	122,861	74,113	none	40
Rich., Fred. and Potomac.... "	76	1,000,000	503,006	1,531,238	254,376	113,256	7	100
South Side..... "	62	1,357,778	640,000	2,106,467	62,762	.....	.....	.....
Virginia Central..... "	107	1,400,100	446,036	In prog.	176,485	74,902	none	61
Virginia and Tennessee..... "	60	3,000,000	1,500,000	In prog.	.....	.....	none	98
Winchester and Potomac.... "	32	180,000	120,000	416,532	89,776	.....	12	.....
Wilmington and Raleigh.... N. C.	161	1,338,878	1,134,698	2,965,574	510,038	153,898	6	.....
Charlotte and South Carolina. S. C.	110	.....	.....	.....	.....	.....	.....	.....
Greenville and Columbia.... "	140	1,004,231	300,000	In prog.	.....	.....	.....	.....
South Carolina..... "	242	3,858,840	3,000,000	7,002,396	1,000,717	609,711	7	125
Wilmington and Manchester. "	.....	.....	.....	In prog.	.....	.....	.....	.....
Georgia Central..... Ga.	191	3,100,000	306,187	3,378,132	945,508	508,625	8	115
Georgia..... "	211	4,000,000	1,214	.....	934,424	456,468	7 1/2	.....
Macon and Western..... "	101	1,214,283	168,000	1,596,283	296,584	153,697	9	109
Muscogee..... "	71	.....	.....	In prog.	.....	.....	.....	.....
South Western..... "	50	586,887	150,000	743,525	129,395	71,535	8	.....
Alabama and Tennessee River Ala.	55	.....	.....	In prog.	.....	.....	.....	.....
Memphis and Charleston.... "	93	776,259	400,000	In prog.	.....	.....	.....	.....
Mobile and Ohio..... "	33	879,868	.....	In prog.	.....	.....	.....	.....
Montgomery and West Point. "	88	688,611	.....	1,330,960	173,542	76,079	8	.....
Southern..... Miss.	60	.....	.....	.....	.....	.....	.....	.....
East Tennessee and Georgia. Tenn.	80	835,000	541,000	In prog.	.....	.....	.....	.....
Nashville and Chattanooga. "	125	2,093,814	850,000	In prog.	.....	.....	.....	.....
Covington and Lexington.... Ky.	38	1,430,150	900,000	In prog.	.....	.....	.....	62 1/2
Frankfort and Lexington.... "	29	357,218	.....	584,902	87,421	44,250	.....	80
Louisville and Frankfort.... "	65	.....	.....	.....	.....	.....	.....	.....
Maysville and Lexington.... "	.....	.....	.....	In prog.	.....	.....	.....	.....
Cleveland and Pittsburgh.... Ohio.	100	1,239,450	1,371,000	2,963,756	194,429	123,306	6	93
Cleveland, and Erie..... "	95	.....	.....	.....	.....	.....	.....	.....
Cleveland and Columbus.... "	135	3,027,000	408,200	3,655,000	777,793	483,454	12	124
Columbus, Piqua and Indiana. "	46	.....	.....	2,000,000	.....	.....	.....	80
Columbus and Lake Erie.... "	61	.....	.....	.....	.....	.....	.....	.....
Cincinnati, Ham. and Dayton "	60	2,100,000	500,000	2,659,653	321,793	200,967	.....	102 1/2
Cincinnati and Marietta.... "	.....	.....	.....	In prog.	.....	.....	.....	72 1/2
Dayton and Western..... "	40	310,000	550,000	925,000	.....	.....	.....	80
Dayton and Michigan..... "	20	.....	.....	In prog.	.....	.....	.....	.....
Eaton and Hamilton..... "	36	.....	.....	.....	.....	.....	.....	60
Greenville and Miami..... "	31	.....	.....	.....	.....	.....	.....	.....
Hillsboro..... "	37	.....	.....	In prog.	.....	.....	.....	.....
Little Miami..... "	84	2,370,784	.....	2,634,157	526,746	314,670	10	113
Mansfield and Sandusky.... "	.....	900,000	1,000,000	1,855,000	.....	.....	.....	.....
Mad River and Lake Erie.... "	167	2,387,200	1,767,000	4,110,148	540,518	113,401	.....	95
Ohio Central..... "	57	.....	.....	In prog.	.....	.....	.....	90
Ohio and Mississippi..... "	.....	.....	.....	.....	.....	.....	.....	87
Ohio and Pennsylvania..... "	187	1,750,700	2,450,000	.....	.....	.....	.....	.....
Ohio and Indiana..... "	.....	.....	.....	In prog.	.....	.....	.....	.....
Scioto and Hocking Valley.. "	.....	.....	.....	.....	.....	.....	.....	.....
Toledo, Norwalk and Clevel'd "	87	552,000	800,000	1,317,140	.....	.....	.....	.....
Xenia and Columbus..... "	54	1,092,137	119,500	1,257,714	237,506	135,363	15	116
Evansville and Illinois..... Ind.	31	.....	.....	In prog.	.....	.....	.....	.....
Indiana Central..... "	.....	.....	.....	.....	.....	.....	.....	80
Indiana Northern..... "	131	.....	.....	.....	.....	.....	.....	115
Indianapolis and Bellefontaine "	83	.....	.....	.....	.....	.....	.....	166
Lawrenceburg and Ind..... "	90	.....	.....	In prog.	.....	.....	.....	05
Lafayette and Indianapolis.. "	62	.....	.....	.....	.....	.....	.....	82
Madison and Indianapolis.... "	88	1,650,000	750,000	2,400,000	516,414	268,075	10	78
Peru and Indianapolis..... "	40	.....	.....	In prog.	.....	.....	.....	65
Terre Haute and Indianapolis "	72	632,387	663,100	1,353,019	105,944	71,446	4	108
Rock Island and Chicago.... Ill.	.....	.....	.....	.....	.....	.....	.....	.....
Chicago and Mississippi.... "	135	2,400,000	4,000,000	4,600,000	.....	.....	.....	.....
Illinois Central..... "	.....	.....	.....	.....	.....	.....	.....	136
Galena and Chicago..... "	92	1,982,361	500,000	In prog.	473,548	286,152	.....	100
Michigan Southern..... Mich.	315	2,800,000	2,629,000	6,430,246	592,187	293,046	.....	120
Michigan Central..... "	282	4,000,000	4,067,396	8,614,193	.....	.....	8	109
Pacific..... Mo.	88	1,000,000	none	In progress	.....	.....	.....	.....

Baltimore and Susquehanna Railroad.

The twenty-sixth annual report of this company has been published, presenting an exhibit of their operations for the year ending September 30th, 1883.

The tabular statements accompanying the report show the gross receipts of the company, for the past fiscal year as heretofore made up, to have been \$456,262 22 against \$383,178 55 for the previous year, and there has been consequently a gross gain of \$73,083 67. Of the gross receipts \$385,381 33 were earned between Baltimore and York; \$37,981 81, between York and Columbia; \$23,712 27 were received from the York and Cumberland Railroad Company, and \$9,186 81 from the Hanover Branch. The two latter items constitute, or are intended to constitute, an indemnity to this company, for the use of its machinery and stock upon those roads, and should, perhaps, properly be deducted from the working expenses of the road, rather than be made to appear as a part of the revenue.

The expenses for the year of working the road, and the other roads, for which stock and machinery are furnished, are stated at \$294,661 61, against \$261,137 58 for the previous year. The locomotives ran 17,000 miles less last year than during the previous year, although the receipts are increased \$73,083 68.

The financial statement which accompanies the report shows the receipts from capital stock to be \$450,000; loan from the State of Maryland \$1,884,045 29; ditto back interest funded \$1,035,980 76; from city of Baltimore \$850,000.

The cost of the road and equipments is \$3,305,150 89; amount paid for interest and discounts \$1,663,844 42.

Connecticut.

At the annual meeting of the New London, W. and Palmer Railroad Company, held at New London 23d November, the following directors were chosen:

Gordon L. Ford, Andrew M. Frink, Acors Barns Henry P. Haven, Francis Allyn, Lyman Allyn, Thomas Fitch, 2d., N. Shaw Perkins, Jr., Joseph Smith, Edward Crane, and Daniel T. Willets.

OFFICERS.

Gordon L. Ford, President.
Thomas Fitch, 2d. Vice President.
John Dickinson, Treas. and Clerk.
Charles W. Butler, Secretary.

James River and Kanawha Canal.

The Board of Public Works have appointed the following gentlemen as Directors on the part of the State, in the James River and Kanawha Company: Messrs. John M. Speed, of Lynchburg, Walter D. Leake, of Goochland, and James Lyons, of Richmond.

Illinois.

Wabash Valley Railroad.—A vote recently taken upon the subscription by the city of Bloomington of \$100,000 to the above road, was carried in favor of such subscription.

Fort Wayne and Chicago Railroad.

The Chicago Tribune understands that the directors of the Fort Wayne and Chicago Railroad have entered into a compact with the Northern Indiana, (Michigan Southern,) directors by which the two roads will unite at La Porte.

What is the Legitimate Office of Newspaper Criticism?

According to the commonly received notion, the office, and proper scope of a newspaper, of the character of the *Journal*, is to state facts:—to give a history of what is taking place from week to week, and to present results, rather than to attempt to influence public opinion, or to control events, by discussing the propriety and impropriety of proposed measures. The chief duty of an editor is undoubtedly confined within the limits described, for facts are the only safe ground for the formation of correct opinions. But in a country like the United States where we have not the aid of history as a guide in similar circumstances, but where the propriety of a particular act is itself a matter of conjecture, rather than of opinion founded upon competent evidence, it may well become a question whether the soundness of such conjectures, should not be made a topic of newspaper criticism, and their fallacy, if such be the case, exposed.

Take for instance a railroad project. The parties immediately concerned becoming warmed up as they proceed, and looking at the subject through the medium of a strong self interest, may entertain very wild and extravagant ideas as to its expedience and soundness as a commercial speculation. Those who represent the former in the financial circles, catch their sentiments and become as extravagant and as unreasonable as their principals. All are convinced of the soundness of their views, and the goodness of their project. There is not the least intention of misleading or over-stating the case. Still it is easy to see that such parties may be wide of the mark,—that they are deceived without the least design to deceive others. The error is one of judgment. Under such bias the company comes before the market for money. This money is attempted to be borrowed in England, we will suppose. The parties lending it have no means of verifying the correctness of the representations made,—are obliged, if they act at all, to take the statements made to them as correct. The result is, the monied man may lose a portion, or all of his loan, while an absolute injury will be likely to be inflicted upon our own people, by being helped to carry out an enterprise that is not needed, and which must turn out a disastrous speculation.

Suppose on the other hand, the less favorable, but correct view of the case, had been presented, it is plain to see that the interference of third parties would have been most salutary and useful both to railroad companies and the public, and in the end, would have commanded general approbation.

In the case supposed, we have assumed the correctness of our criticism to be justified by result. But to await results, is to preclude criticism altogether, and to confine ourselves to the bare narration of events, which only serves to gratify curiosity, without promoting any useful end. In the meantime, blunders are being committed, and schemes foisted upon an uninformed and unsuspecting public, which, with a fair and tolerant discussion of their merits, would have fallen of inherent weakness, without involving the getters up or outsiders, in loss and embarrassment.

There are, of course, two sides to the subject under discussion. A railroad company comes, (as is now almost universally the case, both with new

and old companies throughout the United States,) to New York for money for a project just started. We think the project uncalled for by the commercial or business wants of the country, and claim the right to make public our conviction through the columns of the *Journal*. The company reply "that the propriety of their scheme, being a matter of opinion, in reference to which they have the best means of arriving at a correct conclusion, we have no right to oppose our opinion to theirs, especially as we have no concern nor interest in the matter; that unfavorable comment of our own, is interfering in the affairs of third parties, and is utterly unwarranted; and that after all, it may turn out that we are the parties who are in error, and consequently may do great injustice by an officious interference." Upon these grounds it is claimed that we have no right to discuss the question of the propriety of new railroad schemes offered to the public; and that when we cannot commend, we are bound to be silent.

There is certainly great force in these views, and it would be difficult to sustain the opposite side of the question, were our journal established only for the apparent advantage of railroad companies. But such is not the case. The larger part of our readers are persons who have a greater interest in knowing the real merits of a project, than in the mere question of its success, as far as its construction is concerned. Take, for instance, subscribers residing in England, or on the Continent. They look to our *Journal* for the necessary data to enable them to form correct opinions as to the value of a particular security.

The representation of the parties offering it though honestly made, may be without any good foundation. To a person not familiar with the course of trade in this country, the relations that a scheme may sustain to such trade and to the wants of the public, or the amount of business that the district dependent upon the road is capable of supplying to it, such representations may have too much plausibility to be disproved. A true statement in reference to these matters would enable all parties to see the project in a correct light, and as we said before would guard the rights of strangers, and promote the best interests of our own people.

The great objection to a free criticism of railroad projects is our own liability to be mistaken as to their propriety and ultimate success. Admitting that such may occasionally be the case, which is more than probable, still we do think this fact should close our mouths. A railroad company never ought to be in a position to suffer materially from a mistaken opinion of our own. Such mistakes, when committed, can be immediately corrected, and a discussion which must result in the end in showing the strength of a project, cannot be otherwise than beneficial to it. On the other hand a scheme that will not bear investigation and comment, ought not to be suffered to proceed. The sooner it is brought to an end, the better for all parties.

The unsteadiness of the stocks of most of our railroads is chiefly owing to the ignorance that prevails as to their real value. The comments of the press as a general rule are prompted by a wish either to depress or inflate prices, from interested motives, rather than from a desire to show their true worth, and tend to excite, instead of allaying

apprehension. We find consequently that the market value of stocks depend much upon the movement of operators, than upon their intrinsic value. Take the case of the Erie railroad, for instance. Some morning, when every thing is quiet, a shrewd operator, with a moderate quantity of gold in his pocket, but more brass in his face, goes into the street, and offers 1000 shares at 1 or 2 per cent less than the current rates. This movement sets the whole street on the *qui vive*, and is in an instant made the basis of a thousand rumors prejudicial to the credit and value of the road. These are for an instant believed, not because there is any evidence of their truth, but because there is no evidence by which to disprove them. There is a feeling that they are as likely to be true as false. The current runs downward, till another operator, with more gold and more brass than the first, mounts the rostrum, and commences bidding upward. If he has sufficient assurance and a long purse, he turns, by dexterous use of these, the tide, and puts the market as far above, as it recently fell, below the ordinary standard. In this way is a property of many millions made the foot ball of speculations; simply because the proper evidence of its value is withheld from the public, and which a temperate and fair discussion would have brought out. We simply use the above illustration for a class of cases, without any intention of drawing an unfavorable inference.

We believe that a fair discussion of the merits of railway projects to come within the scope of our paper as well as a duty imposed upon us. We never intend to err on the wrong side, but to always give companies "the benefit of a doubt." When we express our opinion, we shall always open the columns of the *Journal* to the parties feeling aggrieved. In this way the public will be in possession of the evidence in the case, and can form their own conclusions. Having thus laid down a sort of a platform for future guidance, our Railroad companies must not complain if they find us standing upon it.

Missouri Iron Mountain Railroad.

A statement made by the President of this road gives the available resources of the company as follows:

County of St Louis bonds.....	\$500,000
City of St. Louis.....	300,000
Iron Mountain Company.....	125,000
Washington Co., corporation and individuals.....	100,000
City of Carondelet, 6 per cent. bonds..	50,000
Further subscriptions, to be obtained..	50,000
Addition, city of St. Louis bonds.	200,000
State bonds.....	750,000
Individual subscription.....	160,000

Total.....\$2,235,000

Virginia Central Railroad.

At the annual meeting of the Stockholders of the Virginia Central Railroad Company, held in Richmond the 10th inst., Col. Edmond Fontaine was unanimously re-elected President of that company. Messrs. Wm. J. Robertson and David Anderson Jr., were elected directors.

Appointment.

We learn from the Richmond Dispatch that the Board of Public Works have appointed Mr. Charles B. Fisk as Chief Engineer on the Covington and Ohio Road, in the place of Mr. Charles B. Shaw.

Relation of the Great Lakes to the Interior Commerce of the Country.

One of the most noticeable facts that strikes a person travelling through the western States, is the tendency of trade and travel in that section of the country toward the Great Lakes. The Ohio river, which only a few years since was the great route both of commerce and travel, has lost its comparative importance, and hardly enters into the calculations of means, by which the eastern cities are to maintain their commerce with the interior. For the movement of persons it has been entirely superseded by railroad. The same is likely to be the case, to a certain extent, with many kinds of merchandise. Commerce, liberated from the channels it long followed from necessity, takes those which are constructed with express reference to its convenient movement. As the cheapest eastern outlet of the great interior basin is through the Erie Canal, a majority of the public, works in the west, naturally tend toward the Lakes, through which the canal is the most easily and cheaply reached. Travel necessarily adopts the route of commerce, and as the Erie Canal and the Lakes form the great line of communication between the east and west, that of travel naturally coincides with their general direction. Upon the shores of the Lakes, therefore, we witness the great activity of business and the largest concentration of travel in the west, and this is increasing in a much greater ratio than in any other portion of the country.

Another fact, which gives additional impulse to the tendency already noticed, is the unrivalled means of intercommunication which the Great Lakes afford. A vessel may be loaded in Chicago for any part of the world. The same may soon be said of Fond du Lac, the western terminus of Lake Superior. These Lakes possess a climate unexcelled in salubrity, and are surrounded by a soil of great fertility, with portions of it abounding in inexhaustible supplies of coal, copper, and iron. Upon their shores all the elements of wealth exist in the greatest profusion, while the Lakes themselves afford the best possible medium for the distribution of the manufacturing products of the consumer.

The enormous receipts of the line of railroad from Cleveland to Chicago is a striking evidence of the immense business concentrated upon the Lakes. The amount of earnings of these roads has no parallel in the railway history of the country. There are no roads in the United States earning so much upon their cost, and but few upon their mileage. None have met with such extraordinary success, so soon after being opened. At the rate of the past two months, which will soon be maintained for the year, the Michigan Southern road is earning \$2,500,000 per annum, upon a cost of about \$7,000,000! The earnings of this road for October were \$220,804. The earnings of the Erie road for October, upon a mileage of about 500 miles, and a cost of \$32,000,000, was \$552,000. The cost of the Central road, as represented by its stock and bonds, is \$33,000,000. Its earnings for October were \$555,003. The earnings of these roads are equal to 1.70 per cent. per month, upon their cost. Those of the Michigan Southern for October, were equal to 3.60 per cent. per month, upon its cost, or 43 per cent. per annum, or more than double those of the great New York lines. Its earnings too, are increasing in much greater

ratio than those of the above roads. The earnings of the Toledo and Cleveland road, (which makes up a portion of the Lake Shore road,) for October, were \$57,000, upon a mileage of 87 miles, and a cost of about \$1,600,000, which is equal to 3.50 per month, and very nearly equal to those of the Michigan Southern. It will be borne in mind, that the latter road has been opened only 18 months since, while the Toledo and Cleveland road has been in operation only about one half that time. Neither of these roads can yet be in a position to transact all the business offering, nor have they been in operation a sufficient length of time to develop a local business, which always constitute the principle source of revenue of all roads.

We instance the earnings of the above road by way of illustrating the correctness of the facts stated at the outset. They have another use in showing the value in a business point of view, of the route occupied by the Lake shore road. According to our view, a line striking the southern shores of lakes Erie and Michigan, and prolonged at either end, is the axis of the commercial system of this country. Such an opinion, we believe, is justified by the experience already gained.

James River and Kanawha Canal.

A meeting of the stockholders of this Company was held in Richmond on the 17th ult., when reports of the condition and business of the work were read and adopted.

RECEIPTS.—The gross receipts from tolls, water rents and scale house fees on the first and second divisions for the fiscal year ending the 30th September last, were \$293,512 92, being an increase over the preceding of \$16,063 95.

The amount of tonnage conveyed on the canal during the last fiscal year, is 231,032 1-10 tons; being an increase over the preceding year of 20,992 1-10 tons.

The estimated value of freight transported during the past year is estimated at \$17,435,000. This certainly is a gratifying exhibit.

The gross receipts from the productive works of the company, and from miscellaneous sources, for the year ending September 30th, 1853, were \$325,311 52. And the disbursements for repairs, ordinary and extraordinary for the same period, were \$166,931.

The increase of tolls received at Lynchburg during the year has been \$17,823 49 over those of the preceding year.

SHIP LOCK.—A rock foundation for this great structure has been obtained, and it is progressing as rapidly as the limited space for work will permit. The dimensions are 180 feet in length and 35 feet in width—amply sufficient for the largest sized sail vessels fully rigged, which can come to Richmond in the most improved condition of the river. The structure will contain 7,500 cubic yards of masonry, for which the stone is all prepared, and about 4,125 yards are laid.—If the weather proves favorable the masons will lay about 1000 yards per month; and as arrangements have been made to have the most improved lock gates ready when the masonry is finished, the President is of opinion that the tide water connection will be completed at an early day in the ensuing season.

The meeting also—

Resolved, That it is not necessary to ask of the next Legislature any aid in respect to the payment of the Company's semi-annual interest and annuity debt.

Resolved, That the President and Directors are instructed to present a memorial to the next General Assembly asking for such aid as may seem to it proper to enable this Company to extend its canal to the town of Covington, and that the President and Directors are hereby authorized

to execute such securities for any loan or loans that may be made for that purpose as the State may require.

Upon a vote of the stockholders Thomas H. Ellis was elected President and William W. Boyd of Buchanan and Thomas M. Bondurant of Buckingham, Directors.

Locomotive Factory in New-Orleans.

The notice in another column, of the desirable property, known as the Belleville Iron Works, in New-Orleans, is well worthy the attention of capitalists and machinists. The demands for the machinery for the roads terminating in New-Orleans must ultimately require the establishment of a Locomotive Factory in that city, and no time could be more favorable for the commencement of such an enterprise than now, when the construction of the original and principal equipments of these roads is about to be allotted by contract. In the whole west there is no locomotive factory south of Nashville. In the east, none south of Petersburg, Va., and the expense, delay, and uncertainty of shipping engines from either of these points, would operate very much in favor of a locomotive factory on the spot. The expense of shipping engines from Richmond to New-Orleans will often reach \$1000, while there is great uncertainty in so long and difficult navigation, and the engines are always considerably depreciated in value at the end of a voyage, owing to exposure to salt water.

Iron Bridge Completed.

The iron bridge of the Central Ohio Railroad, across the Muskingum, at Zanesville, was opened for the passage of trains on the 10th instant. The bridge was built by Douglass, Smith & Co., and is stated to be in every respect a first class work. The occasion of its opening was celebrated in Zanesville with much spirit.

New Works.

We have the 20th number, just published, of D. K. Clark's "Railway Machinery;" received at the hands of Geo. Taylor, Esq., Agent for Blackie & Son, 117 Fulton Street. This number contains sections of Messrs. Kitson, Thompson and Hewitson's inside connection locomotive. These sections show the extreme width of furnaces and frames which a proper arrangement of these parts allows on engines for the narrowest gauge. The engine illustrated in this number is for a four feet 8½ inch gauge, and has a clear width between inside frames of 48½ inches, the frames being thin and placed edgewise. Their dimensions are 8 inches by 1½ inch. The distance between centers of cylinders is 2 feet 5½ inches, which allows of a single intermediate steam chest with direct action valves working on vertical faces. The cylinders are of 16 inches diameter. The furnace has the extreme width of 43½ inches inside, besides allowing water spaces of 3 inches thickness and extremely thick plates. The connection of the cylinder and crank being "inside," the center of the boiler is necessarily elevated 6 feet 3 inches from the rails, for a driving wheel of 6 feet diameter. This, too, is with a boiler of only 42½ inches diameter, and is a full foot more than in our best examples of American outside connections.

The number before us contains very full investigations of the structure of locomotive framing,

with remarks upon wheels and axles, springs and axle boxes, etc., etc. There are, also, several illustrations of the best examples of turn-tables.

The 7th number of the "Engineer and Machinists' Drawing Book" is also received from Blackie & Son. There are several fine illustrations of gearing, steam engine details, and skeleton drawings of locomotives, intended to facilitate the construction of original plans, etc. The letter press illustrations are clear, practical and comprehensive.

Journal of Railroad Law.

POWER OF SUPERINTENDENT ON RAILWAYS.

It will be seen that the New York Superior Court, have upon appeal, declared that a railway Superintendent cannot bind his employers by employing a surgeon to attend a wounded passenger.

DECISION.

Mark Stephenson against the New York and Harlem Railroad Co.

Bosworth J.—The plaintiff, a physician and surgeon, brought this action to recover for professional services upon P. Teniat, who was injured by being run over by defendant's cars. The services were rendered upon a previous promise of a Superintendent of the Company that the latter would pay for them. The power of the Superintendent, according to the evidence given at the trial, related solely to running the trains as prescribed by the company, employing men for the purpose and providing for the accomplishment of this result. He had not, on any other occasion, employed a physician or surgeon. He had not been held out by the company as having such authority, and his acts, in this case, had not been ratified by the company. It did not appear that Teniat was injured by the negligence of defendants. The plaintiff was nonsuited, and from the judgment rendered he appeals. Judgment appealed from confirmed, with costs.

TRIAL OF AN ENGLISH ENGINEER.

Richard Pardington and Joseph Woods, an engine driver and fireman, on the Great Northern Railway, were recently tried in the Central Criminal court of London for a misdemeanor, upon the complaint of the Company. The express train to which defendants belonged started from London on 31st August last at 5 P. M., and an accident occurred that evening at Hornsey station. Previously that day an accident occurred to a freight train between Barnet and Hornsey, and this train being thereby delayed, did not reach Hornsey until 5 minutes before 5 P. M., and it was necessary that it should "be shunted," as the term is, across the down track into "a siding." There were 14 minutes for this operation, for the express train was not due at Hornsey until 10 minutes after 5 P. M. The trucks got safely over but the tender got off the rails and obstructed the down track. The danger signal at the station was immediately put up and another danger signal 500 yards further towards London, was also put up, and a man sent up the road with a red flag, which was also a danger signal. He went some distance beyond the second signal post. An electric message was also immediately sent to London concerning the obstruction. Unfortunately, the express train had left London before the message arrived there. The train proceeded at the usual speed to Hornsey, and no steps were taken until too late to arrest

the train, whence occurred a collision with the tender and much injury, although no loss of life, to passengers. It was urged that if defendants had attended to the signals they could have easily prevented the accident.

The question was, whether defendants have violated the clause of the Railway Act which provides that "any person who shall wilfully do, or cause to be done, any act tending to obstruct the passage of a carriage or engine over a railway, or to endanger the safety of passengers on such carriage, should be held guilty of a misdemeanor.

The Justices Crosswell and Williams held that omitting to see a signal was not a wilful act. Sergeant Wilkins said that the clause clearly applied to strangers, not to employees on the railway trains. Verdict not guilty.

APPRAISAL OF LAND REQUIRED FOR RAILROADS.

In our issue of 15th of October last, we cited the rule of the Supreme court of this State, by which the main inquiry in cases of this nature was declared to be "what is the entire property now fairly worth in the market, and what will that part not taken be worth after the improvement is made?"

In a late controversy, of ten days continuance, between the Air Line railroad company and Mr. H. Griffin, of Middletown, Conn., it would seem that a mode of ascertaining damages was adopted which was not inconsistent with the rule above stated. Mr. G. had laid out eleven acres of his land for city lots. The company required a fifth of the same for the purposes of their railroad, and would by taking the same greatly lessen the value of the remainder for building purposes. The commissioners took into consideration the benefits to be derived from the railroad, and although the claim for damages amounted to \$3,250, they allowed the land owner but \$950.

The benefit and also the damages to be taken into consideration by the commissioners must be direct, not remote and conjectural. So in the case of *Hill vs. the Mohawk and Hudson Railroad* 5 Den., 206, it was held by our Supreme Court that it is proper for the commissioners in cases of this kind to take the testimony of witnesses who are qualified to form a judgment of the value of the lands from which the road is to be taken, as a whole, and as to the mode in which they will be affected by severing from them that portion which is required for the purposes of the road.

The difference between the fair, prospective value of the land not taken, and the present value of the whole tract will furnish guidance in determining the amount of damages to which the claimant is entitled.

But the claimant should be confined to the inquiry as to the diminution of the value of his land directly proceeding from the railroad. It is not competent for him to show damage only indirectly or contingently occasioned by the Railroad.

CARRIER'S PARCELS.

In the English Court of Exchequer a question lately arose in relation to what are called composite parcels, or parcels made up of sundry smaller ones, in the case of *Crouch vs. the Great Northern railroad company*. The plaintiff was a carrier by a railroad, and one of his agents having requested the defendants agents to carry a parcel upon the said road, they had refused so to do

without compensation greater than what is charged for ordinary packages, on the ground that the composite parcels were attended with more risk than the ordinary ones, and such has been, in at least one English case, decided to be the law. The jury brought in a verdict for defendants. But Justice Erle, on a motion for a rule, thought that a further discussion of the question would be useful, and granted the rule.

THE BROADWAY RAILROAD CASE.

This case was decided by the Superior court on Saturday last. We subjoin the grounds of the decision by which the company are perpetually enjoined against proceeding. So that unless the Court of Appeals shall reverse the judgement, the city railroads must vanish like "the fabric of a vision." "The Court hold,—

1. That the Common Council have no authority to grant a perpetual license for a railroad, as was done in this case, because this is to alienate their own power over the streets, which power is given them by the legislature, and which is inalienable.
2. That the Council have no power to grant a license to a railroad at all, inasmuch as it is a monopoly and a municipal corporation had no power to create a monopoly.
3. That the grant establishes a joint stock association, which is a palpable usurpation, inasmuch as such an association can only be created by law.
4. That an important condition of the contract with Jacob Sharpe and his associates for the construction of this road, was that they should clean and sweep the whole of Broadway south of Fourteenth-street every morning excepting Sunday; while no such contract can be made except by the Head of the department to which that especial branch of service particularly belongs.
5. That the right to grant licenses to run passenger coaches and carriages is lodged exclusively with the Mayor, and that cars must be deemed and taken to come under the laws regulating such vehicles.

Michigan Southern and Illinois Central Railroad Crossing.

DECREE OF COMMISSIONERS.

THE NORTHERN IND. AND CHICAGO R. R. Co.,
vs. the Illinois Central R. R. Co.

In Chancery, in the Circuit Court of Cook Co., Illinois:

To the Hon. Buckner S. Morris, Judge of said Court: The undersigned, Edward H. Brodhead and Joseph Gillespie, associated with John Van Nortwick, Commissioners elected and appointed by virtue of a stipulation entered into in conformity with the provisions of an order of said Court, herewith annexed, beg leave respectfully to report to said Court, that they with their associate Commissioner have heard evidence and argument of counsel of said parties respectively, in regard to all the matters submitted in said stipulation, and carefully considered the said matters—and that the undersigned have agreed and determined and do hereby award that the point of crossing of the railroad of the defendants over the railroad of said complainants shall be at the point named in said stipulation; and that the manner in which the said railroad of said defendants shall be allowed to cross the said railroad of said complainants shall be by bridge, to be built by said defendants at least eighteen feet in the clear, above the surface of the rails of the railroad of the complainants, and of a width not less than thirty feet in the clear; and said bridge and the approaches thereto to be efficiently commenced within thirty

days from this date, and prosecuted with all due diligence to final completion; and after the construction of said bridge and the approaches thereto, the crossing of the railroad of the defendants over the railroad of the complainants shall be by bridge and not otherwise. In the mean time, and during the construction of said works, the railroad of the defendants may cross the railroad of the complainants at grade, at or near the present point of crossing, for the purpose of operating their said railroad, and constructing the said works.

The undersigned have also awarded that the said defendants shall pay the said complainants, and demand, one dollar for damages, on account of the crossing in the manner above prescribed.

In witness whereof the undersigned do hereby affix our hands and seals, at Chicago, this 5th day of November, 1853.

EDWARD H. BRODHEAD,
J. GILLESPIE,

{ Seal
{ Seal

Philadelphia Locomotives.

Messrs. Richard Norris and Son have sent us fine lithographs of the freight and passenger engines now building at their shops in Philadelphia.

In the passenger engine we notice several favorable features for speed and economical working. The cylinders are outside connected and are laid horizontally. The drivers are 6 feet in diameter. The boiler is of large size being 4 feet in diameter, with 11 feet flues and a furnace of 4 feet 2 inches outside length. The trucks are well spread, being 4 feet 9 inches between centers. The frame is the thin, edge frame; pumps full stroke; valve motion the separate cut off and vee hooks. The furnace is of the wagon top form and is surmounted with a large dome. The whole plan appears simple and calculated to afford good results.

It affords besides an illustration of the assimilation of style of modern locomotives, of which we have often had occasion, to speak. The arrangements and proportions, with but few exceptions, are very similar to those which the most successful builders have adopted.

There are two illustrations of freight engines; the one having eight connected drivers, the other four drivers and a truck. The former is a rather light pattern, having a 42 inch boiler, 11 feet tubes and 44 inch drivers. The furnace, however, is of large dimensions. The heavy freight engine, having but four drivers, appears to have a cylinder of 16 by 24 inches, drivers of 4 feet 6 in. diameter, boiler 48 inches diameter, tubes 12 ft. in length, and outer furnace 4 feet 2 inches long. The cylinders are very nearly level, the trucks well spread, the separate cut off valve is retained, and a novel mode of spring suspension is made use of wherein there is but a single spring, hung to the crown sheet of the furnace, for the two wheels of each side of the engine.

The only material alteration which we should suggest in the plans of the freight engines would be the addition of a pair of drivers to the heavy engine, which would secure more adhesion and make a better distribution of the weight. The lighter engine appears to have more adhesion than is requisite for ordinary business.

We like the general style of Messrs. Norris and Son's recent engines. They combine good proportions with simplicity of construction; appear to have but little dead weight, and if properly balanced, (the drawings show no counterweights)

will no doubt run as steadily as any engines in the country.

Engineering Works at Holyhead Harbor.

In the October number of the Civil Engineer and Architect's Journal we find some facts in regard to the extent of the works now in prosecution for the protection and improvement of the Holyhead Harbor at the western terminus of the Chester and Holyhead link of the great London and Dublin railway.

The undertaking was commenced in 1849, and is intended to secure a total area of 316 acres for the purpose of a harbor, two-thirds of that space having a minimum depth of seven fathoms at low water. Accommodation will be thus provided for about 400 vessels of all classes, including 70 men-of-war, as large as the *Duke of Wellington*. The north or great breakwater will be 5000 feet long and 170 feet wide, and of this immense work 4000 feet have already been completed to low water mark—3500 feet of it being from 14 to 15 feet above high water. The depth at low water thus filled up is from 45 to 48 feet, and some idea may be formed of the magnitude of this mole from the fact that the stonework which surmounts it is about 80 feet above the foundation. The smaller, or eastern breakwater, which protects the harbor on the landward side, will be 2100 feet long, and 1000 feet of it have already been formed, in a depth of 30 feet at low water, and to a width of 110 feet.

The method that has been adopted by Mr. Rendel for carrying out the breakwater, and which is under the immediate superintendence of the resident engineer, Mr. C. Dobson, is by means of a timber staging of five roads, 40 feet above the water, and 150 feet wide, supported on piles 80 feet long, which piles remain buried in the bank of stone as the work advances. The loaded stone wagons are taken down these five roads by locomotive engines, then tilted, discharging their contents, each of them eight to ten tons of stone, through the staging into the sea, forming a bank of rubble-stone, from the bottom upon which the piles rest to above the surface of the water. Whole trains of wagons can thus be made to deposit simultaneously, and with a rapidity and certainty that no other system would admit of; 5000 tons of the rock obtained in the quarries are thus with ease deposited in the day in the breakwater, at the spot indicated; and, by this means, about 3,000,000 tons of stone have been brought down, run out, and tipped into the sea. The staging is constantly kept in advance of the work by means of cranes upon the stage itself, which lift the piles (80 feet in length) from the water till they become upright; they are then properly adjusted in their place by the aid of a lilliputian screw steamer 60 feet long, when the framing and roads are then placed upon them, and rails laid to receive the wagons; the discharged wagons are again drawn up to the quarries for a fresh supply of stone, and the movement from the quarries to the end of the staging goes on continually. This five-road timber stage of the north pier, above described, has now advanced 4000 feet to sea out of the 5000 required to complete it, and this length of breakwater already formed has afforded shelter to hundreds of vessels for the last three winters, and 50 to 80 sail at a time, of wind-bound vessels, may now occasionally be seen anchored within the area of the new harbor.

In order to obtain so large and unprecedented a supply of rock as 5000 tons a day, blasting with gunpowder upon a large scale has been introduced, and at the foot of the mountain called Holyhead Mountain (which is of a hard schistus quartz rock) quarries have been opened and formed, which, for extent, height of face (about 200 feet), and yield of stone, are certainly unparalleled. Fifty-nine to sixty shafts and galleries are sunk or driven into the rock, which is of so hard and impenetrable a nature that only one foot upon an average can be driven in twenty-four hours by the

three relays of miners, who continually go on driving day and night. After the chambers or galleries are completed, two or three of them are sometimes discharged simultaneously with charges of gunpowder varying from 3000 lb. to 10,000 lb.; the instantaneous ignition of the charges is brought about by means of the galvanic battery, and the results are as great as from 30,000 to 50,000 tons of rock at once. We witnessed upon this occasion the effect of four of these large explosions, in which about 8000 lb. of gunpowder was discharged, displacing and throwing out several thousand tons of stone. About 20,000 lb. of gunpowder, or 10 tons, are thus expended weekly, in large and small blasts.

In the quarries appears the largest amount of activity of any part of this great work—fifty moveable cranes (some with steam power) for raising the stone, from two hundred to three hundred wrought-iron wagons for conveying it, eight locomotives, and about fifty horses for the movement of it; these, together with a staff of men on the work of about 1400, are daily employed by the contractors, Messrs J. and C. Rigby, in pressing forward to its completion this great national undertaking.

North Carolina.

Wilmington and Raleigh Railroad.—The annual meeting of the stockholders of this road took place at Wilmington on the 10th inst.

It appears from the report of the Auditing committee that the road has been doing a good business the past year.

The nett profits exceed by \$46,717 71, those of the year previous; the through travel is also increased to the amount of \$13,710 00; the way travel \$39,213 30; the freight on road \$2,388 14, over the previous year's receipts.

The result of the business for the year ending Sept. 30th, is as follows:

RECEIPTS.	
Amount received from through travel.	\$214,135 02
" " " way	138,148 40
Freight on railroad	112,582 23
Freight, Meals, etc., on Steam Boats.	17,609 67
Transportation of mails, rents, etc.	86,424 85
	\$568,899 67

EXPENSES.	
Cost of transportation, including purchase of locomotives, coaches and cars	\$155,233 73
Railroad repairs	45,054 82
Expenses of steam boats.	147,652 84
Office expenses	365 62
Interest and exchange	57,976 80
	406,283 31

Net profits.....\$162,616 36
The liabilities of the company on the 1st of October, 1853, were \$1,156,261 12, consisting of the following items:

Old bonds payable in England at five per cent.	\$222,666 67
Bonds endorsed by the state of North Carolina, at 6 per ct.	250,000 00
Bonds to Literary Fund of N. Carolina at 6 per ct.	85,000 00
New bonds payable in England	444,444 45
Bonds to U. States, payable in mail service	32,918 64
Bills payable	72,080 02
Due on pay rolls	8,483 17
" Negro bonds, 1844, to 1853, inclusive	33,506 79
Due on Dividends No's 1, 2, and 3.	4,839 00
Due to sundry individuals	2,053 98
Balance due on thirty shares of stock surrendered to be rode out.	168 50

\$1,156,261 12

The following was the condition of the company on the 1st Oct. 1853:

Debt of the company.....	\$1,156,261 12
Capital stock paid in.....	1,840,213 21
Balance of profits from commencement of operations to 1st October, 1853, after paying interest on debt.....	584,333 64

Cost of construction, real estate, etc.....	\$2,075,052 42
Reconstruction.....	773,650 85
29 shares company's stock.....	2,900 00
Due on forfeited stock.....	950 00
Wil. and Man. R. R. Co's stock.....	100,000 00
W. & N. O. Telegraph stock.....	3,150 00
Bills receivable.....	228 00
Due from individuals.....	25,682 45
Due from agents.....	24,792 06
Due from post office department for mail service.....	24,715 05
Counterfeit money taken.....	373 54
Cash in hands of treasurer.....	49,313 60
	\$3,080,807 97

Tennessee Central Railroad.

The election of officers of this company made at Trenton, Tenn., resulted as follows:

C. K. Wiley, of Benton county; Y. W. Allen and James Adkinson, of Carroll county; John A. Taliferro, Solomon Shaw and Wm. W. Lea, of Gibson county; John W. Campbell and S. Mc. Lemore, of Madison county; Dr. S. Oldham and A. J. Halliburton, of Haywood county; Hiram Partee and James L. Green, of Lauderdale county.

At a subsequent meeting of the board of directors, Wm. W. Lea, of Trenton, was chosen president, and Rufus E. Buffum, secretary and treasurer.

The individual subscriptions to the stock of this company now amount to.....	\$225,000
Additional subscriptions, which have been promised, and will be obtained by January 1st.....	75,000
County subscriptions, which, it is not doubted, will be voted by Benton county.....	50,000
By Carroll county.....	150,000
By Lauderdale county.....	100,000
Amount proposed to be taken in stock contracts.....	200,000

Engineer's estimate of cost of grading, bridging, culverts, masonry, etc., from Fulton to Tennessee river.....	\$800,000
	458,000

Remaining for other purposes.....	\$346,665
State bonds promised conditionally.....	1,000,000
Proceeds of the sale of 1700 acres of land at Fulton, estimated to produce at least.....	1,000,000

Total cost of superstructure from Fulton to Tennessee river in round numbers.....	\$2,346,665
	\$1,146,665

Leaving a balance of.....\$1,200,000
For extension of the road to Nashville, or for other purposes.

The above is a brief statement of means relied upon by this company. If the Nashville and North Western road be built to the Tennessee river, the Tennessee Central railroad company will have a large surplus of means, that may be ap-

plied to the construction of a railroad in extension beyond the Mississippi river or to such other objects as the stockholders may determine upon.

P. J. Tournadre,

Chief Engineer Vicksburg, Shreveport and Texas R.R.,
Vicksburg, Miss.

To Locomotive Engine Builders and Engineers.

THE Proprietors offer for rent for a term of years, with immediate possession, the splendid property, known as the BELLEVILLE IRON WORKS, situated on the Mississippi, directly opposite the City of New Orleans, and within 300 feet of the River, with which it is connected by fine wharves and landings.

The buildings are of brick, with slated roofs, and were erected in 1848 at a very heavy expense; are of a most substantial and durable character and admirably fitted for a Foundry and Machine Shops, or almost any mechanical business. They now contain a new and powerful Engine and Boiler and sufficient machinery, say, planing machines—lathes—boring machines, blacksmith's tools, &c., &c., to employ 100 mechanics, and could be put in working order in a few days. The Buildings cover a lot 300 feet square and are amply large to receive the necessary machinery for the use of 800 to 1000 workmen.

The terminus and depot of the New Orleans, Opelousas and Great Western Railroad is situated about 300 yards from the above property, which could be availed of to great advantage for the manufacture of Locomotives and Railroad work, generally as well as Steam Engines, Sugar Mills, and other descriptions of Machinery.

There are no Shops in New Orleans for the manufacture of Railroad Machinery, and as the Railroad Companies now organized in that city contemplate the construction of over 1000 miles of road,—a large part of which is already under contract,—the property now offered for lease offers a most eligible opportunity for parties desiring to contract to furnish the Engines and Machinery,—for those roads. Responsible contractors with their works on the spot would have an advantage over Northern Workshops in contracting for the Work of the Railroads terminating in New Orleans.

The Establishment and prospect of remunerating work to be secured immediately are worthy the attention of manufacturers and Engineers generally.

Applications from responsible parties will be promptly attended to, and to satisfactory parties the proprietors of the Works can offer favorable terms and arrangements.

Letters may be addressed to
R. B. SUMNER,
No. 61 Camp Street,
New Orleans;

and further information may be had by applying to Messrs. BARSTOW & POPE, Pine Street, New York.

Railroad Iron.

TWO THOUSAND TONS Erie Pattern, 58 lbs. to the yard, already shipped, and expected here soon—for sale by
381r JOHN H. HICKS, 90 Beaver st.

1300 Tons Yorkshire T rail, weighing 56 lbs. to the yard, and of a superior quality daily due and for sale by,
NAYLOR & CO.

Oxford Furnace, N. J.

ESTABLISHED A. D. 1743.

THE Subscriber manufactures and keeps constantly on hand for sale, every variety and size of Railroad Wheels made from the celebrated Oxford Iron. All orders addressed to CHAS. SCRANTON, Oxford Furnace P. O., will be attended to promptly.
Sept. 11, 1852. ly*

Machinists' Tools.

A SUPERIOR CLASS,

DESIGNED particularly for Railroad work, manufactured by L. B. TING & CO., (late ALDEN, TING & CO.)
Oct. 7, 1852. LOWELL, MASS.

Valuable Works on Railroads, Railway Engineering, Steam Engines, &c.

LARDNER'S RAILWAY ECONOMY, 1 vol.	\$2 00
THE STEAM ENGINE, STEAM NAVIGATION, ROADS AND RAILWAYS, Explained and Illustrated by Dr. LARDNER, 8th Edition, revised and improved.....	2 00
TREDGOLD ON THE STEAM ENGINE, 3 vols., 4 to., 1/2 calf.....	50 00
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TRAUTWINE ON EXCAVATIONS AND EMBANKMENTS.....	1 00
Imported and for sale by JOHN WILEY, 167 Broadway, New York.	

N. York and N. Haven R. R.

NOTICE OF SUMMER ARRANGEMENTS,

Commencing Monday, May 9, 1853.

TRAINS FROM NEW YORK.	TRAINS TO NEW YORK.
7 A. M.—Accommodation to New Haven.	5.30 A. M.—Special, from Port Chester.
8 A. M.—Express for Boston, stopping at Stamford and Bridgeport.	5.00 A. M.—Commutation from New Haven.
9.10 A. M.—Special for Port Chester.	6.15 A. M.—Accommodation from New Haven.
11.30 A. M.—Accommodation for New Haven.	8.15 A. M.—Accommodation from New Haven.
3.00 P. M.—Express for New Haven, stopping at Stamford, Norwalk and Bridgeport.	9.35 A. M.—Express from New Haven, stopping at Bridgeport, Norwalk and Stamford.
4.00 P. M.—Accommodation for New Haven.	1.07 P. M.—Boston Express, stopping at Bridgeport, Norwalk and Stamford.
5.00 P. M.—Express for Boston, stopping at N. Haven.	4.00 P. M.—Special, from Port Chester.
5.35 P. M.—Commutation for N. Haven.	4.00 P. M.—Accommodation from New Haven.
6.30 P. M.—Special for Port Chester.	9.30 P. M.—Boston Express, stopping at Bridgeport, Norwalk and Stamford.

GEORGE W. WHISTLER, Jr., Sup't.
New Haven, May, 1853.

Stuart, Serrell & Co.,

CIVIL ENGINEERS,

Rooms 22, 24, 26 & 27,
157 Broadway, New York.

CHARLES B. STUART,
DANIEL MARSH,

EDWARD W. SERRELL,
SAMUEL McELROY.

New Works on Civil Engineering.

THE Field Practice of laying out Circular Curves for Railroads.—By JOHN C. TRAUTWINE, Civil Engineer.—2nd edition in pocket-book form.

A new and rapid method of Calculating the Cubic Contents of Excavations and Embankments, by the aid of Diagrams.—By John C. Trautwine, Civil Engineer—with 10 Copper Plates.
Price One Dollar each—postage on the Curves, Three Cents—and on the Excavations and Embankments, Six Cents.

For sale by
WILLIAM HAMILTON,
Hall of the Franklin Institute,
Philadelphia.

May 4, 1853.

ESTABLISHED 1796.

McAllister & Brother,

OPTICIANS and Dealers in Mathematical Instruments, at the old established stand, 48 Chestnut street, Philadelphia, Pa. Mathematical Instruments separate and in cases, Protractors, Spelling Dividers, Drawing Pens, Ivory Scales, Tape Measures, Balometers, Spy Glasses, Microscopes, Spectacles, Hydrometers, Platinum Points, Magic Lanterns, etc., etc.

Our Illustrated and priced Catalogue is furnished on application and sent by mail free of charge.

Nov. 30, 1852

\$1,000,000 LITTLE MIAMI RAILROAD COMPANY SIX PER CENT. FIRST MORTGAGE BONDS FOR SALE.

OFFICE OF WINSLOW, LANIER & Co.
No. 52 Wall-st., Oct. 6, 1853.

THE LITTLE MIAMI RAILROAD COMPANY offer for sale one million of their **SIX PER CENT. BONDS**, with coupons. Interest and principal payable in New York, the former half-yearly, 1st of November and 1st of May. They are in sums of \$1,000 each, payable the 1st day of May, 1858.

These Bonds are issued under the express authority of the Legislature of the State of Ohio; and are a part of the \$1,500,000 Loan authorized to be issued by a vote of the stockholders, for the purpose of raising means to make a double track; the greatly increased and increasing business of the road makes this absolutely necessary.

The Little Miami Railroad is eighty-four miles long, commencing at the City of Cincinnati and terminating at Springfield; is now in complete running order; has cost, including equipments, stations, station-houses, &c., up to this date \$2,708,109 19.

This Company hold stock in the Columbus and Xenia Railroad Company to the amount of \$386,000, which now commands a premium of 20 per cent. Also, in the Hillsborough Road the amount of \$11,716.

The receipts of the Road have been as follows:

For the year ending Dec. 1, 1844.	....\$18,623 36
For the year ending Dec. 1, 1845.	.... 46,327 58
For the year ending Dec. 1, 1846.	....116,052 02
For the year ending Dec. 1, 1847.	....221,139 52
For the year ending Dec. 1, 1848.	....280,085 78
For the year ending Dec. 1, 1849.	....321,398 82
For the year ending Dec. 1, 1850.	....405,597 24
For the year ending Dec. 1, 1851.	....487,845 89
For the year ending Dec. 1, 1852.	....526,746 85
The receipts from Dec. 1, 1852, to Sept. 1, 1853, 10 months were.	....544,625 59
For the same period year before.	....411,797 06

Increase in 10 months.....\$132,823 53

The position of this road, being the natural, shortest and most usually travelled route from Cincinnati and the vast country south and west of it, to the northern cities, must ever make it one of the most important and profitable lines in the country.

An inspection of a map will show its connections to be many and important. This road operates the Columbus and Xenia Road, and runs in connection with the Cleveland and Columbus Road; in fact they are now run as one line greatly to the advantage of all.

Regular annual 10 per cent. dividends have been declared since December, 1847, with an extra dividend of 5 per cent. in 1852. In 1852 two cash dividends of 5 per cent. were made.

The present surplus and reserve fund amounts to.....\$98,546 10

The mortgage covers the entire line of road, costing to date... 2,708,108 19

To be expended on double track, &c. 1,500,000 00

Value of security.....\$4,208,109 19

The security for the payment of these Bonds is one of the most ample character, being a first and only mortgage or deed of trust (excepting one of \$100,000 to the City of Cincinnati) on the Company's Road, Stations, Franchises, net income, &c., to J. F. D. LANIER, Esq., of this city, in trust for the bondholders, with ample power to take possession of the Road, its real and personal estate, franchises, &c., and to sell the same to the highest bidder for cash, if default be made in payment of interest or principal. The mortgage is for \$1,500,000, and cannot be increased.

The Stock owned by the Road in the Columbus and Xenia and Hillsborough Railways will much more than pay off the \$100,000 prior lien to the

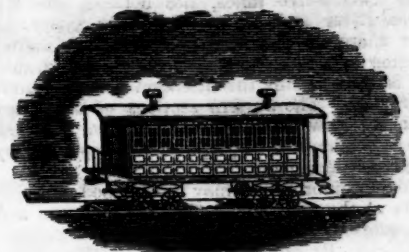
City of Cincinnati, and all other debts of the Company, excepting this loan of \$1,500,000.

These Bonds are offered at private sale by the undersigned, Agents of the Company.

Printed statements of the affairs of the Company, and any further information relative to the securities, will be given by

WINSLOW, LANIER & CO.,
No. 52 Wall-st.

Elmira Car Manufactory.



THE Undersigned is prepared to manufacture for Railroad Companies, Passenger, Baggage, Cattle, Freight, Gravel and Hand Cars, also Baggage Barrows and Freight Trucks.

WM. E. RUTER.

Elmira, N. Y., June 1, 1853.

The Hamilton Car Company,

ARE prepared to Contract for the Manufacture to order Rail Road Cars of every description, such as Passenger, Baggage, Freight, Dumping and Hand Cars, &c. &c.

Having ample facilities for Manufacturing at the lowest rates, and being supplied with Eastern Mechanics in every department under the Superintendence of H. P. Lanekton, who has had charge of T. W. Wason's well known establishment at Springfield Mass., for the last Six years, we can guaranty ours to be equal in style and quality to any manufactured.

Car Manufacturers and Rail Road Companies Supplied with Car wheels from the most approved patterns at the lowest prices. Castings of all kinds for Cars, Rail Road Bridges, &c. made to order at short notice.

Orders Respectfully Solicited.

Address, HENRY SIZER, Agent,
Cincinnati Ohio.

Office 596 Fifth Street, Cincinnati, at Rail Road Depot Building.

Railroad Car Works.

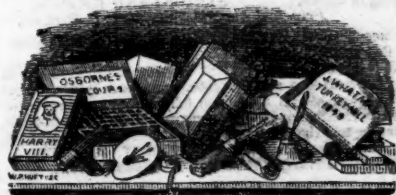
THE Undersigned are prepared to manufacture for Railroad Companies, Passenger, Baggage, Cattle, Freight, Gravel and Hand Cars, also Baggage Barrows and Freight Trucks.

F. HUNGERFORD & CO.

Mayville, Ky., Sept. 29, 1853.

Huffy's

Engineers, Architects and Draftsmen's
STATIONERY EMPORIUM.



WHATMAN'S Turkey Mill Drawing paper, Tracing paper, Plan and Profile, Protractors, Drawing Pins, Faber's, Jackson's and other makers' Pencils; Field, Level, and Memorandum Books of various patterns; Mathematical Instruments, Tape-lines, Mouth Glue, Cross Section paper, Triangles, Sabel Brushes, Gum Bands, Maiden Gum, Red Tape, Ink, Inkstands and Sand, Water Colors, Pallets, Patent Binders for letters, Portfolios, etc., together with a general assortment of Stationery and Blank Books. All goods packed with care, and forwarded to any part of the United States.

JOSEPH HUFFY,
Successor to H. L. Lipman,
139 Chestnut st., Philadelphia.

May 15, 1851.

Buffalo Car Works.

TOWNSEND & COIT, Proprietors.

WE are now erecting an extensive Establishment for the manufacture of Railroad Cars, which will be furnished with all the conveniences known to the business, and ready for operation by the 1st day of June next, at which time we will be ready to execute orders for Baggage, Box, Platform and Cattle Cars, of the most approved style and finish. Meantime we are prepared to make contracts for work to be furnished during the summer and fall.

February 23, 1853.

TOWNSEND & COIT, Buffalo.

A. N. GRAY, Cleveland, O.,

RECEIVER AND FORWARDER of Railroad

Iron, Chairs and Spikes

Also, Cars, Locomotives, and all kinds of Machinery for Railroad purposes.

Office next door to the Custom House, Main st.

January 12, 1853.

SIXTY MILES DISTANCE SAVED!—ONLY THIRTY-SIX AND A HALF HOURS TO CHICAGO.

MICHIGAN SOUTHERN RAILROAD LINE, carrying the Great Western U. S. Through Mail—FOR CHICAGO AND ST. LOUIS, MILWAUKEE, RACINE, KENOSHA, and all Ports on Lake Michigan.—Through from Buffalo to Monroe IN FOURTEEN HOURS WITHOUT LANDING.

The following magnificent and unequalled steamers from the line between Buffalo and Monroe:

EMPIRE STATE, J. WILSON, Commander, leaves Buffalo Mondays and Thursdays.

SOUTHERN MICHIGAN, A. D. PERKINS, Commander, leaves Buffalo Tuesdays and Fridays.

NORTHERN INDIANA, I. T. PHEATT, Commander, leaves Buffalo Wednesdays and Saturdays.

One of the above splendid steamers will leave the Michigan Southern Railroad Line Dock, at 9 o'clock, P. M. every day, (except Sundays) and run direct through to Monroe without landing, in 14 hours, where the Lightning Express Train will be in waiting to take passengers direct to Chicago in 8 hours; arriving next evening after leaving Buffalo.

THE LAKE SHORE RAILROAD.

runs in connection with this line, forming the only continuous line of Railroad to Chicago and the Illinois River.

For Through Tickets, by New-York and Erie and Buffalo and New-York City Railroad via Buffalo, or by the People's Line of Steamboats, Hudson River Railroad via Albany and Buffalo, apply to

JOHN F. PORTER, Agent,
No. 193 Broadway, corner Dey-st., N. Y.

MONTREAL & NEW YORK AND

Plattsburgh and Montreal RAILROADS.

Open through from Plattsburgh to Montreal.

Passenger Trains leave Montreal for Plattsburgh at 6 30 a.m. and 5 p.m., arrive at 8 a.m. and 7 30 p.m.

Leave Plattsburgh for Montreal 7 30 a.m. and 4 p.m., arrive at 10 a.m. and 6 50 p.m.

Trains connect at Montreal with Steamers for Quebec, and the St. Lawrence and Atlantic Railroad for Sherbrooke and intermediate stations.

Trains connect at Moores Junction with Northern (Ogdensburg) Railroad for Ogdensburg and Lake Ontario Steamers for Lewiston, Niagara Falls and Upper Canada, and all ports on the Western Lakes.

Trains connect at Plattsburgh by Steamer to Burlington with Rutland and Burlington Railroad and connecting lines for Troy, Albany, New York and Boston, and all intermediate stations. Also with steamers for Whitehall to the Saratoga and Washington Railroad, and connecting lines of road to Troy, Albany and New York.

Passengers will find this route unequalled for comfort and dispatch, and attended with least fatigue and delay than any other. It possesses moreover the advantage of a short Forriage of only fifteen minutes across the River St. Lawrence at Caughnawaga, which has never been known to freeze, and can be confidently relied upon at all seasons of the year.

Freight Trains run daily each way.

For particulars see Freight and Passenger Tariff.

Baggage checked through.

H. W. NELSON, Superintendent.

New York and Erie R. R.

PASSENGER TRAINS

leave Pier foot of Duane street, as follows, viz:—

DAY EXPRESS, at 6 a. m. for Dunkirk and Buffalo.

MAIL, at 8 1/2 a. m. for Dunkirk and Buffalo, and all intermediate stations. Passengers by this train will remain over night at any station between Binghamton and Corning, and proceed the next morning.

ACCOMMODATION, at 12 1/2 p. m. for Delaware and all intermediate stations.

WAT, at 3 1/2 p. m. for Delaware and all intermediate stations.

NIGHT EXPRESS, at 5 p. m. for Dunkirk and Buffalo.

EMIGRANT, at 6 p. m. for Dunkirk and all intermediate stations. On Sundays only one Express Train—at 5 p. m.

The Express Trains connect at Dunkirk with the Lake Shore Railroad for Cleveland, Cincinnati, Chicago, etc., and at Buffalo with first class splendid steamers for Cleveland, Sandusky, Toledo, Detroit and Chicago.

CHAS. MINOR, Sup't.

Notice to Contractors.

WARSAW & ROCKFORD RAILROAD.

THE preliminary Surveys are now complete for the First Division, (about 120 miles) from Warsaw, through Nauvoo, Oquawka, Keithsburg, Rock Island and to Port Byron, including both Rapids of the Mississippi, and the location progressing. The character of the country is such, and the surveys so near to any location that will be made, that Contractors can satisfy themselves of the value of the work as well now as hereafter. Proposals are asked at the Office of the Company in Warsaw, Hancock County, Illinois, for the construction of the whole or part of the road, either by quantities or by the mile. Contract will not be made before the 1st of January, 1854, and only so soon thereafter as advantageous offers can be made. The Company are willing to make general contract, for cash or for cash and securities.

The route of the road is generally in the valley and second bottoms of the Mississippi, and the work can be completed very rapidly. The road is important as one of the improvements of the navigation of the Rapids, and also from its several (two at least) connections with other railroads.

WM. H. ROOSEVELT,
President.

W. R. KINGSLEY,
Engineer.

T. S. O'SULLIVAN,
Consulting Engineer.
Warsaw, Nov. 17, 1853.

CORROSIVE SUBLIMATE.

THIS article now extensively used for the preservation of timber, is manufactured and for sale by POWERS & WEIGHTMAN, manufacturing Chemists. Philadelphia.
Jan. 29, 1849.

Railroad Iron.

2,000 TONS FIRST CLASS WELSH RAILWAY IRON, to be made to any ordinary T pattern required by the buyers, and for shipment from Newport, Wales, in December, January, and March next, apply to the undersigned, for many years connected with the largest house in the trade.
JOHN H. AUSTIN & CO.,
44tf 2 Ingram Court, Fenchurch street London.

A Valuable Farm in Illinois for Sale.

SITUATED in the Village of Seward's Point in Montgomery County 7½ miles North of Hillsborough, about 36 South of Springfield the Capital of the State, about 18 West of the Illinois Great Central Railroad, about 4 or 5 North of the Alton & Terre Haute Railroad and about 18 miles West of the intersection of the two, containing 80 acres of rich prairie land.

Apply by letter or in person to
S. S. ROCKWELL,
No. 15 South Second str. Williamsburgh.

To Railroad Companies, Machinists, Car Manufacturers, etc., etc.

CHARLES T. GILBERT,
NO. 80 BROAD ST., NEW YORK,

IS prepared to contract for furnishing at manufacturer's prices—
Railroad iron,
Locomotive Engines,
Passenger and Freight Cars,
Car Wheels and Axles,
Chairs and Spikes.

Orders are invited; and all inquiries in relation to any of the above articles will receive immediate attention.
India-Rubber Railroad Car Springs, etc.

THE UNITED STATES CAR SPRING COMPANY, having completed their new Factory, are manufacturing and furnishing to Railroad Companies, and Car Builders, RUBBER SPRINGS of the best quality, on the most favorable terms. Also, McMullen's superior WHITE HOSE, not only for Railroads, but all other purposes, and of any size or thickness required.
Office No. 25 Cliff street,
44g, 10, 1853. 3m New York.

Notice to Contractors.

COVINGTON & OHIO RAILROAD.

PROPOSALS will be received, at the Office of the Covington and Ohio Railroad, in Covington, until the 15th of December next, for the graduation and masonry of about seventy-five miles of the above road; of which, the eastern portion, comprising fifty miles, lies next west of Covington, and the western portion, consisting of about twenty-five miles, lies between the Kanawha River and the mouth of Big Sandy. A large share of the work to be let—including bridging and tunnelling—is heavy and desirable, and is well worthy the attention of responsible contractors. The western sections of the above work are now ready for examination, and the eastern portion will be prepared for inspection by the 8th of December.

Further information may be obtained on application at the company's offices at Covington and Guyandotte

By order of the Board,
CHARLES B. FISK,
Chief Engineer.

N. B.—The Board of Public Works, of Virginia, under whose direction the Covington and Ohio Railroad is to be constructed, on State account, will meet, at Covington, on the 15th of December, above named, for the purpose of receiving and acting on the proposals that may then be offered.
Nov. 10th, 1853.

To Railroad Companies.



COLLINS' PATENT VENTILATORS,

FOR
Ventilating all kinds of
PUBLIC AND PRIVATE BUILDINGS
Railroad Cars, Depots, etc.

THE Subscribers would invite the attention of the public to the above celebrated Patent Ventilator. This Ventilator is the best one now known of, for giving a pure air in rooms, and ejecting all foul air. It has been adopted by all the principal Railroad Companies and Car Factories, and is extensively used for private dwellings, and for the cure of smoky Chimneys cannot be excelled. Manufactured and for sale by

BAKER & WILLIAMS,
No. 406 Market st., Girard Row,
Sole Agents for Pennsylvania.

CERTIFICATES.

Engineer Department P.R.R., Altoona, Feb. 8, 1853.
This is to certify that Messrs. BAKER & WILLIAMS, of 406 Market st., Philadelphia, have furnished a large number of Collins' Patent Galvanized Iron Ventilators for the P. R. R. Co., and that they have given every satisfaction, acting fully as represented. I consider them as a necessary appendage to an Engine House. We have them in use thirteen inches, and two feet diameter, acting equally well. So well satisfied am I of their usefulness, that the Engine Houses we are about building will be supplied with them at every point where a draft is necessary to free building of smoke.
STRIKLAND KNEASS,
Principal Assistant Engineer P. R. R. Co.

Engineer Depart. P. R. R. Co., Pittsburgh, May 12, 1853.
Messrs. BAKER & WILLIAMS,
Dear Sirs—The 23 Collins' Patent Ventilators furnished by you for the Engine House at this place, have been in use several months and their merits have been fully tested and have given most perfect satisfaction; being constructed on true principles of Ventilation, and the workmanship is of a substantial and superior character. Yours truly,
OLIVER W. BARNES,
3m40 Principal Assistant Engineer P. R. R. Co.

Krupp's CELEBRATED CAST STEEL,

Which obtained the Council Medal at the London Exhibition in 1851.

Warranted unapproachable as to Quality and Size.
PLATERS and other Cast-Steel Rollers, of any dimensions not exceeding six feet long by eighteen inches diameter. Piston Rods and Shafts for Steam Engines, not exceeding 3000 lbs. in weight.

Railway and other Axles, Cranks, Springs and Tyres. Cannon, Rifle and Gun Barrels. Mint and other Rolling Mills

Orders received by

THOMAS PROSSER & SON,
28 Platt street, New York.

Sole Agents for the United States.
Nov. 19, 1853.

To Contractors.

CHIEF ENGINEER'S OFFICE, N. & P. R. R. Co.,
Norfolk, Oct. 13, 1853.

SEALED PROPOSALS will be received by the undersigned at this office from the 3d, until the 15th day of December next, at noon, for the graduation and masonry of 62 miles of the Norfolk & Petersburg railroad between the city of Norfolk and Warwick Swamp in the county of Sussex.

The line will be divided into sections of about 4 miles, and bids will be received for one or more of said sections.

Maps and profiles of the line will be ready for inspection and specifications with forms of proposals may be had of the undersigned on and after the first day of December.

Payments will be made in current money during the progress of the work in proportion of four-fifths of the amount due.

As soon as practicable after the examination of the proposals, those to whom the work will be allotted will be duly notified, and if deemed necessary required to give bond with satisfactory security for an amount not exceeding one-tenth of the amount of work to be done.

The company reserves the right to accept such proposals as in their judgment will secure the prompt and faithful execution of the work according to contract, or reject all, if none are satisfactory.

The line is easy of access, the country through which it passes is of mild climate and abundant in supplies. Postage on all communications must be prepaid.

W. MAHONE,
Chief Engineer.

Small Rails.

THE SUBSCRIBERS manufacture and keep constantly for sale, Light Rails of the most approved patterns, weighing 22, 25, 28, 40 and 50 lbs per yard, suitable for Colliers, Miners, Quarries and Contractors, or for turn outs, depot and branch tracks.
CHARLES E. SMITH & Co.
Fairmount Iron Works, Philadelphia.
1744 CHAS. E. SMITH,
THOS. T. TASKER, HENRY MORRIS,
WISTAR MORRIS.

Drawing.

B. BLANDOWSKI, Topographical and Ornamental Draughtsman and Designer. Maps accurately drawn, enlarged or reduced from notes or copies. Ornamental designs for decorations, furniture, fences and ornamental foundry work. Architectural designs. Drawings from nature carefully prepared.

REFERENCES. Messrs. Miller and Freund, Ligneous Marble Works, corner of Franklin and Center streets, New York. Also H. V. Poor, Esq., Editor Railroad Journal, and Zerah Colburn, Assistant do.

Address, care of Railroad Journal, 9 Spruce street New York.

Henry I. Ibbotson,

MANUFACTURER OF
FILES AND SAWS,
Warranted of superior quality.
Office and Warehouse, 218 Pearl st., New York.

Book and Job Printing.

The undersigned have added to the PRINTING ESTABLISHMENT of the "RAILROAD JOURNAL," an extensive OFFICE for BOOK AND JOB PRINTING, which they are now prepared to execute in the BEST manner, and with DISPATCH. They respectfully solicit from RAILROAD COMPANIES, orders for the PRINTING of Exhibits Time-tables, Circulars, Tickets, &c., &c.

J. H. SCHULTZ & CO.

New York April 9, 1853.